

Technical Report 1080

Tacit Knowledge in Military Leadership: Evidence of Construct Validity

Jennifer Hedlund and Joseph A. Horvath
Yale University

George B. Forsythe and Scott Snook
United States Military Academy

Wendy M. Williams
Cornell University

Richard C. Bullis
Center for Army Leadership

Martin Dennis and Robert J. Sternberg
Yale University

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**EDGAR M. JOHNSON
Director**

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**Steven N. Aude, Center for Army Leadership
Peter J. Legree, U.S. Army Research Institute**

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Jennifer Hedlund and Joseph A. Horvath
Yale University

George B. Forsythe and Scott Snook
United States Military Academy

Wendy M. Williams
Cornell University

Richard C. Bullis
Center for Army Leadership

Martin Dennis and Robert J. Sternberg
Yale University

Fort Leavenworth Research Unit
Stanley M. Halpin, Chief

U.S. Army Research Institute for the Behavioral and Social Sciences
5001 Eisenhower Avenue, Alexandria, Virginia 22333-5600

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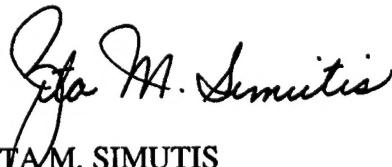
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FOREWORD

A primary mission of the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) is to enhance military readiness through programmatic research that supports the effective performance of Army leaders. To accomplish this, ARI and the United States Military Academy (USMA) established the Center for Leadership and Organizations Research (CLOR) at USMA to conduct research as part of ARI's research program in the areas of organizational leadership and leader development, education, and training. The research reported here is part of the ARI exploratory development research program formulated and undertaken by the CLOR.

This report is the fourth product of a project jointly undertaken by researchers at USMA and at Yale University. The overall objective of the project is to test the applicability of a theory of tacit knowledge to military leadership. Previous research has shown that tacit knowledge, acquired through practical on-the-job experiences, is related to executive and managerial effectiveness in civilian organizations.

A rigorous methodology has been followed in identifying tacit leadership knowledge at three levels of command and in developing the actual test items at each level. This report describes the construct validation of these instruments developed to test the tacit leadership knowledge of platoon leaders, company commanders, and battalion commanders. The results show a relationship between our measures of tacit leadership knowledge and ratings of leadership effectiveness. The next step will be to assess the practical implications this has for leader development.



ZITA M. SIMUTIS
Technical Director

TACIT KNOWLEDGE IN MILITARY LEADERSHIP: EVIDENCE OF CONSTRUCT VALIDITY

EXECUTIVE SUMMARY

Research Requirement:

To establish the construct validity of instruments developed to assess the tacit knowledge for military leadership of officers at platoon, company, and battalion levels. This involved showing (a) that tacit knowledge predicts leadership effectiveness, and (b) that tacit knowledge predicts better than traditional measures of leadership.

Procedure:

A battery of instruments was administered to a representative sample of Army officers at the platoon, company, and battalion levels. This test battery included the Tacit Knowledge Inventories for Military Leaders, the Tacit Knowledge Inventory for Managers, the Concept Mastery Test, and the Leadership Effectiveness Survey. Statistical analyses were performed on these data to test the construct validity of the Tacit Knowledge Inventory for Military Leaders.

Findings:

At each level, tacit knowledge for military leaders predicted ratings of leadership effectiveness. In addition, the Tacit Knowledge Inventory for Military Leaders predicted better than measures of verbal reasoning ability, tacit knowledge for managers, and experience. Different relationships between tacit knowledge and the criterion of leader effectiveness were observed across levels. At all three levels, tacit knowledge for military leaders related to how officers were seen by their superiors. Additionally, at the company level, tacit knowledge predicted how officers were rated by their subordinates and peers, reflecting the complexity of the company commander role. At the battalion level, tacit knowledge about management was informative about how subordinates viewed their battalion commanders, reflecting the types of activities that are most likely to be observed by subordinates.

Utilization of Findings:

Findings from the current study add further support to the validity of tacit knowledge for military leadership. Tacit knowledge makes a difference in the effectiveness of Army leaders at the platoon, company, and battalion levels. These findings highlight the complexity of the tacit knowledge construct, emphasizing the importance of using a multi-level approach to identifying and assessing tacit knowledge. These results will be used, along with previous findings, to develop recommendations for promoting the acquisition of tacit knowledge for military leadership in a subsequent report.

TACIT KNOWLEDGE IN MILITARY LEADERSHIP: EVIDENCE OF CONSTRUCT VALIDITY

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TACIT KNOWLEDGE IN MILITARY LEADERSHIP: EVIDENCE OF CONSTRUCT VALIDITY

Introduction

The Tacit Knowledge for Military Leadership project is a collaborative research effort between the U.S. Army Research Institute, the U.S. Military Academy, and Yale University. The purpose of this research has been to discover what makes some officers more successful leaders than others, and to use this information to identify ways in which the Army can develop effective leaders. In any environment, successful leaders pick up tacit and even hidden clues as to what strategies and tactics will be effective for leadership. The approach we have taken is to identify and assess tacit knowledge for effective military leadership. Our work to date has sought to identify the knowledge held by successful Army officers that can be defined as tacit (Horvath, Forsythe, Sweeney, McNally, Wattendorf, Williams, & Sternberg, 1994), and to develop inventories to assess the level of tacit knowledge exhibited by officers (Horvath, Sternberg, Forsythe, Sweeney, Bullis, Williams, & Dennis, 1996). The purpose of this report is to present results from a preliminary study designed to validate the construct of tacit knowledge for military leadership.

The question of what leaders know in terms of how to effectively lead has received little attention in research and theorizing on leadership (Bass, 1988). Previous approaches to studying leadership effectiveness have produced inconclusive or contradictory results (Yukl & Van Fleet, 1992). One approach has been to assess leaders on general cognitive ability. There are mixed findings regarding the relationship between IQ and leadership. For example, Fiedler has shown that IQ is positively correlated with leadership success under conditions of low stress, but it is actually negatively correlated with leadership success under conditions of high stress (Fiedler, 1995). A second approach involves using tests of personality, an approach which has also had limited success (Lord, DeVader, & Alliger, 1986). Although leaders seem, on average, to be more open to experience than nonleaders, other personality traits fail to predict across situations. A third approach addresses the more formalized knowledge and experience of leaders. Obviously, expertise and experience are crucial for leadership success. Fiedler found that the relationship between experience and performance was greater under conditions of high stress than low stress. But it is arguably what one learns from experience, rather than the experience itself, that is most important. Our approach is to measure what one has learned from experience, that is, knowledge we define as tacit.

One reason that more conventional approaches have had limited success in predicting leadership effectiveness is related to a distinction between academic and practical types of tasks. Academic tasks tend to be well-defined, circumscribed, unmotivating, decontextualized, abstract, and irrelevant to many people's lives. In contrast, practical tasks tend to be ill-defined, open, motivating, contextualized, concrete, and relevant to many people's lives. This distinction is also reflected in the differentiation between academic and practical intelligence (Sternberg, 1996). That is, the abilities needed to be successful on academic tasks are not necessarily the same ones required for success in real-world, practical situations. Measures of general cognitive ability and formalized knowledge are more relevant indicators of performance on academic

tasks. Measures of practical intelligence, of which tacit knowledge is an example, will likely provide a better entree to understanding who will be a successful leader.

Another reason why traditional methods of assessing leadership are limited is that academic tasks, and even many practical tasks, involve only adaptation to the environment-- changing oneself to suit the environment. Leadership, however, involves modification of the environment--shaping the environment in order to accomplish one's leadership goals. More specifically, military leadership can be characterized as the process of exerting interpersonal influence to accomplish organizational goals by providing purpose, direction, and motivation (Department of the Army Field Manual 22-100). The ability to shape is clearly important for successful leadership and, therefore, measures that primarily address adaptive abilities will not necessarily be informative about those who effectively shape their environment.

We have taken an alternative approach to studying leadership that seeks to understand the rich, contextualized knowledge that is an important component in the practical ability for shaping environments. According to the Army's own analysis, its future operating environment will be characterized by heightened speed and complexity, wider dispersion of units, and increasing reliance upon fewer systems and people. When the environment is characterized by such features, people are more likely to rely on implicit modes of learning and informal means of acquiring knowledge. Therefore, it is important to understand the role of tacit knowledge in leadership in order to support the Army's ability to develop successful leaders.

Because we believe that tacit knowledge is (for these and other reasons) critical to understanding and supporting the performance of Army officers, the Tacit Knowledge for Military Leadership project has aimed to discover the knowledge, above and beyond that which is taught explicitly, that relates to successful leadership. This work not only extends the tacit knowledge approach to the domain of military leadership, but also explores qualitative differences in tacit knowledge at different organizational levels and examines different perspectives as to what represents good tacit knowledge. The construct validation of our measures of tacit knowledge for military leadership (the Tacit Knowledge Inventories for Military Leaders) presented here is a key element in our effort to apply the lessons of tacit knowledge research to improving leader development and organizational learning within the Army.

In the material that follows, we provide a brief summary of theory and research on the tacit knowledge construct. Then, we review the major phases of our research project leading up to the current validation effort. The method used to validate the tacit knowledge is discussed, followed by a presentation of the results which are organized by level of military service. Finally, we draw some conclusions from our findings and make some general recommendations for leadership development in the Army. These recommendations are elaborated upon in a subsequent report.

Tacit Knowledge

Tacit knowledge¹ is most commonly defined as knowledge that resists introspection and articulation. That is, it is defined as knowledge that people do not know they have and/or find difficult to articulate. As its currency has increased, the term "tacit knowledge" has devolved into something of an *ad hoc* category, with quite different kinds of knowledge being lumped together. To better understand the senses in which the term is used, it is helpful to consider several reasons why useful knowledge might remain tacit or unspoken.

Pattern irreducibility.

Some knowledge remains tacit because it concerns information patterns that cannot be reduced to rules or generalizations. For example, certain battlefield configurations may signal to the commander an opportunity but such configurations may be easier to recognize than to define concisely.

Context dependence.

Some knowledge remains tacit because it is highly dependent upon the context in which it was acquired. For example, knowledge of a senior officer's moods and personality quirks may be quite useful but only narrowly applicable.

Routinization.

Some knowledge (particularly knowledge of action sequences) remains tacit because it becomes compiled into routines or procedures that "run" without conscious attention. For example, the coordination of hand- and foot-driven controls becomes "second nature" to experienced vehicle operators.

Distribution.

Some knowledge remains tacit because it is distributed among individuals as a consequence of the division of labor. When knowledge is distributed, no one person possesses the total knowledge of the group and, unless a concerted effort is made to capture and codify the knowledge of the group, it will remain tacit.

¹ The term "tacit knowledge" has roots in works on the philosophy of science (Polanyi, 1966), ecological psychology (Neisser, 1976), and organizational behavior (Schön, 1983). The adaptation of the term to account for individual differences in practical intelligence reflects an intellectual debt to all of these sources.

Operational Definition of Tacit Knowledge

The operational definition of tacit knowledge that guided our research focused less on why knowledge remains tacit than on how tacit knowledge can be distinguished from more explicit, formal knowledge. This emphasis was necessary, given our desire to capture the leadership-related tacit knowledge of Army officers for purposes of measurement and validation. For these purposes, we defined tacit knowledge as that which is

- Grounded in personal experience
- Intimately related to action
- Not well supported by formal training and doctrine

The criterion of being "grounded in personal experience" was intended to distinguish tacit knowledge from second-hand knowledge or "received wisdom." We restricted our study to knowledge based (as best we could determine) on first-hand experience or on vicarious experience through direct observation. The criterion of being "intimately related to action" was intended to distinguish tacit knowledge from "inert" knowledge. We restricted our study to knowledge that was instrumental (as best we could determine) to the attainment of goals that Army leaders cared about. Finally, the criterion of being "not well supported by formal training and doctrine" was intended to distinguish tacit knowledge from knowledge that is explicitly taught or espoused. We restricted our study to knowledge that (as best we could determine) had to be acquired in the absence of support--knowledge that an officer might or might not acquire.

Finally, we applied an additional criterion in order to restrict our study to knowledge that pertained to leadership per se (i.e., rather than tactical or technical aspects of job incumbency). Thus, we classified as tacit knowledge for military leadership only that knowledge which pertains to the influence of others toward the attainment of the organization's legitimate goals.

Research on Tacit Knowledge

Social science research on tacit knowledge issues from a single, simple observation--that learning from experience often occurs without conscious intention to learn or conscious awareness of having learned. Rather, such learning is experienced as something that happens "behind the scenes" as people pursue goals on the job. The common language of the workplace reflects an awareness of this fact as people speak of "learning by doing" and "learning by osmosis." When learning occurs implicitly, behind the scenes, the knowledge that results has a tacit quality--people may be unaware of what they know and may have difficulty articulating it, even when prompted. Again, the language of the workplace is instructive. Terms such as "professional intuition" and "professional instinct" seem intended to denote the opaque or tacit quality of knowledge gained from job experience. In this section, we briefly describe research that supports the psychological reality and practical importance of tacit knowledge in professional competence.

The opaque quality of expert knowledge is, of course, well documented in the literature on human expertise (see Chi, Glaser, and Farr, 1988). Research on experts in a variety of knowledge-intensive domains has shown that reasoning and problem solving in such domains

depend upon proceduralized skills and schematically-organized knowledge, both of which may operate outside of focal awareness. Further, expert knowledge may reflect the structure of the operating environment or situation more closely than it does the structure of formal, disciplinary knowledge (Groen & Patel, 1988)--making a focus on such formal knowledge a relative "blind alley" in efforts to understand expert performance. Experts queried about what they know often have great difficulty articulating the knowledge that underlies their decisions or capabilities on the job.

Further support for the psychological reality of implicit learning and tacit knowledge comes from research, conducted in the laboratory, focusing on the phenomena of learning without intention or awareness. The foundational research in this area was conducted in the late 1960s by Arthur Reber and colleagues (Reber, 1967; Reber & Millward, 1968; Reber, 1969). Their work on the acquisition of stochastic grammars and of event sequences suggested that human subjects are capable of acquiring knowledge of a very complex nature without conscious intention or awareness of learning. Later researchers applied the paradigm to study learning of meaningful information (e.g., information about other people, information about the behavior of an economic system) and replicated the basic pattern of results (Broadbent & Aston, 1978; Broadbent, Fitzgerald, & Broadbent, 1986). Laboratory work on implicit learning suggests that subjects are able to exploit the structure inherent in a stimulus display in order to gain useful knowledge of the regularities in their environment. Importantly, this knowledge seems to be acquired in the absence of awareness or intention to learn--it is knowledge of a hidden or tacit nature.

In addition, tacit knowledge has been shown to lie at the root of knowledge creation and innovation in civilian business enterprises. Research in civilian setting has shown that tacit knowledge, when properly mobilized, can be an engine of continuous innovation and sustained competitive advantage (Davenport & Prusak, 1997; Leonard-Barton, 1995; Nonaka & Takeuchi, 1995). Conversely, Szulanski (1996) and Kogut & Zander (1992) have shown how the tacitness of organizational knowledge, when left unmanaged, can impede the replication of process innovations and, more generally, the transfer of best practices within the firm. Together, these findings suggest that the cultivation and sharing of tacit knowledge is an important consideration in knowledge-based or "learning organizations."

Research on Practical Intelligence and Tacit Knowledge

In the program of research which influenced our current work most directly, Sternberg and colleagues have used the tacit-knowledge construct to elucidate practical intelligence and performance in domains as diverse as high-technology manufacturing, bank management, academic psychology, and sales. In what follows, we briefly recount major findings of the tacit-knowledge research program.

Research by Sternberg and colleagues has shown that tacit knowledge can be effectively measured (Wagner, 1987; Wagner & Sternberg, 1985; Sternberg, Wagner, Williams, & Horvath, 1995). The measurement instruments employed in this research typically consisted of a set of work-related situations, each with between five and twenty response items. Each situation posed a problem for the subject to solve, and the subject indicated how he or she would solve the

problem by rating the various response items. For example, in a hypothetical situation presented to a business manager, a subordinate whom the manager does not know well has come to him for advice on how to succeed in business. The manager is asked to rate each of several responses (usually on a 1 = low to 9 = high scale) according to its importance for succeeding in the company. Examples of responses might include (a) setting priorities that reflect the importance of each task, (b) trying always to work on what you are in the mood to do, and (c) doing routine tasks early in the day to make sure you get them done. The set of ratings the subject generates for all the work-related situations is used to measure his or her tacit knowledge for that domain. The procedure for scoring tacit-knowledge tests has undergone evolution across several studies, and a detailed description is beyond the scope of this report. In general, tacit-knowledge tests have been scored in one of three ways: (a) by correlating subjects' responses with an index of group membership (i.e., expert, intermediate, novice), (b) by judging the degree to which subjects' responses conform to professional "rules of thumb," or (c) by computing the difference between subjects' responses and an expert prototype. Scores on the tacit knowledge inventories have been used to examine the relationship of tacit knowledge with other constructs.

Tacit knowledge has been found to increase, on average, with job experience, but it is not a direct function of job experience (Wagner, 1987; Sternberg, Wagner, & Okagaki, 1993). What matters most is not how much experience a person has, but how well the person utilizes the experience to acquire and use tacit knowledge. Tacit knowledge is not a proxy for IQ. Scores on tacit knowledge tests seldom correlate with measures of IQ,² and when such correlations are found, tacit knowledge generally predicts job performance better than IQ (Sternberg et al., 1993; 1995). Finally, tacit knowledge does not appear to be a proxy for measures of personality, cognitive style, or interpersonal orientation. When managers were assessed on such measures, tacit knowledge for management was found to be the best single predictor of performance on a managerial simulation when all measures were entered into a simultaneous regression (Sternberg et al., 1993). Furthermore, the contribution of tacit knowledge to the prediction of simulation performance was significant after controlling for the effects of all other variables.

In addition to predicting performance on a managerial simulation, tacit knowledge has been found to predict other indices of job performance, correlating between .3 and .5 with measures of rated prestige of business or institution, salary, performance appraisal ratings, number of publications, etc. (Wagner, 1987; Wagner & Sternberg, 1985; Sternberg et al., 1993; Sternberg et al., 1995). These correlations, uncorrected for attenuation or restriction of range, compare favorably with those obtained for IQ within the range of abilities we have tested. Tacit knowledge also predicts both academic performance and self-reported adjustment in a college setting (Sternberg et al., 1993). Its prediction of the academic performance is comparable to that

² It should be noted that these correlations involved selected samples and thus may have suffered from range restriction and elevated means. It can be argued, however, that the ranges tested actually represent the true populations of interest. The decreasing positive manifold effect at higher ability levels (Detterman & Daniel, 1989; Legree, Pifer, & Grafton, 1996) does not necessarily have to be viewed as a limitation to the generalizability of such findings, but rather an indication that the Potential Classification Efficiency (Brogden, 1959) of using multiple predictors may be greater in such populations.

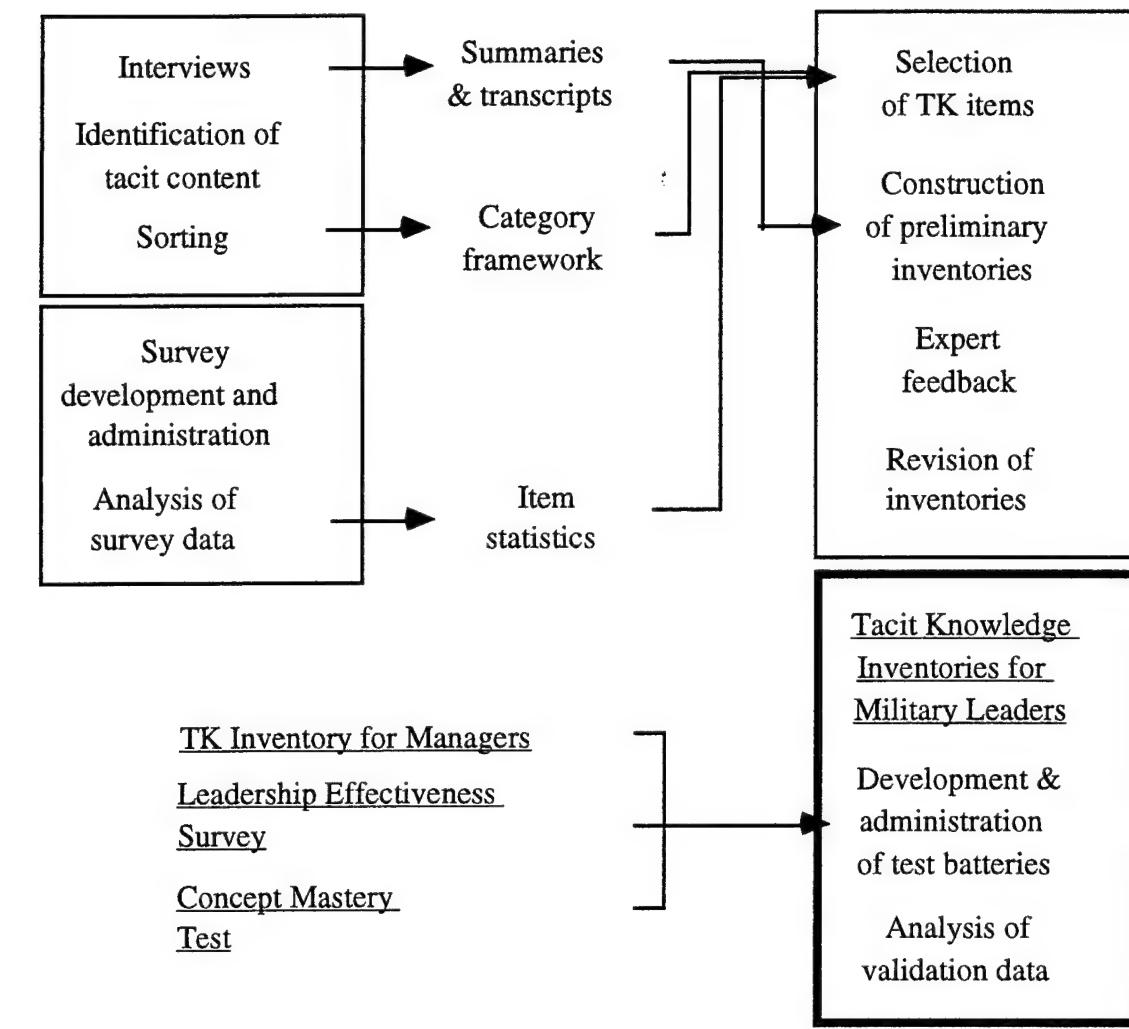
of conventional academic-ability tests (with a multiple R of about .6), whereas its prediction of adjustment is better (with a multiple R of about .8).

In summary, a program of empirical research has shown that tacit knowledge can be measured and that it can predict performance in a variety of contexts. In general, tacit knowledge increases with experience, but is unrelated to traditional measures of intelligence and personality. More importantly, tacit knowledge has been shown to be a better predictor than many traditional measures such as IQ and personality.

Overview of the Project

The goals of the Tacit Knowledge for Military Leadership Project have been to identify, validate, and recommend ways to leverage the tacit knowledge of Army officers at three leadership levels within the U.S. Army. Our approach has been (1) to identify tacit knowledge, (2) to develop means of measuring it, (3) to validate those measures against indices of leader effectiveness, and (4) to recommend ways in which the Army might make more efficient use of this hidden asset. The approach we have taken to the first three of these goals may best be described by analogy to a production process. That is, we extracted "raw materials" in the form of stories and insights obtained from Army officers during interviews. We processed these materials in order to refine them, using analysis and further data collection to narrow down and polish our sample of officers' tacit knowledge. We then used these refined materials to construct a line of "products" (i.e., inventories for measuring the tacit knowledge of Army officers). Finally, we tested our products against "industry" performance standards--standards for the reliability and validity of psychological tests. Figure 1 shows, in schematic form, the steps involved in the production of tacit-knowledge inventories. The boxes in Figure 1 represent major phases of the research project and the arrows represent important intermediate products from each phase.

Figure 1.
Phases of the Tacit Knowledge for Military Leadership Project



Identifying the Tacit Knowledge of U.S. Army Officers

In the first phase of the research project, we conducted a series of interviews with 81 Army officers to elicit the experience-based tacit knowledge of Army leaders at three organizational levels: platoon, company, and battalion. We employed a semi-structured interview format in which Army officers were asked to "tell a story" about a personal experience from which they learned something important about leadership at their current level. Interviewers and the interviewee worked together to clarify and capture the important features of these experiences. From the transcripts of these interviews we compiled a set of story summaries which formed the basis for further analysis and refinement.

The content of these summaries was reviewed by a panel of military experts to identify those that met the criteria for the operational definition of tacit knowledge. That is, knowledge

was identified as tacit if it was grounded in personal experience, intimately related to action, not well supported by formal training or doctrine, and pertained to military leadership. Once the sample of tacit knowledge had been identified, members of the expert panel were asked to sort the remaining knowledge items into categories of their own devising. By aggregating and cluster analyzing the sort data, we derived content-based categories of tacit knowledge at the platoon, company, and battalion levels. The categorical framework that resulted from these analyses provided early insight into developmental challenges, unique to each organizational level, that serve as stimuli for tacit knowledge acquisition (see Horvath et al., 1994). This framework also served as an important source of input to the inventory-development process.

Preparing for Inventory Development

In the next phase of the research, we sought to further narrow and refine our sample of officer tacit knowledge. Specifically, we sought to identify those items that best embodied the tacit-knowledge construct and, thus, were most promising for purposes of inventory development. We conducted a large-scale survey study in which we asked Army officers to rate the tacit-knowledge items on a number of dimensions and used discriminant analysis to identify those items that best discriminated between experienced and novice officers at each level. Those items with the most discriminating power were, by virtue of their demonstrated relationship to "experience," judged to be the most promising for purposes of instrument development (see Horvath et al., 1996).

Inventory Development

The goal of the next phase was to develop the tacit knowledge inventories for each organizational level. Separate inventories were deemed appropriate since the tacit knowledge elicited from officer interviews indicated that different developmental challenges existed at each level. In other words, the tacit knowledge for effective leadership at the platoon level may not be relevant to the company or battalion levels. In developing the inventories, we sought to embody the refined set of tacit-knowledge items in a test that could be administered to Army officers in order to assess the relationship between measured tacit knowledge and measured effectiveness. We used item statistics to select tacit-knowledge items that were (individually) construct relevant, and we used the category framework to select sets of items that were (collectively) construct representative. Finally, we used the original summaries and transcripts to expand each of the selected tacit-knowledge items into a scenario that posed a leadership problem, along with a set of 5 to 15 response options for each scenario, which subjects rated for their quality.

Once preliminary inventories were constructed for each of the three levels under study, we sought to further refine the inventories. We convened focus groups composed of recent job incumbents and explained to these officers the goals of our research and the nature of tacit knowledge as we defined it in our study. We then asked them to judge the "fit" of our inventory questions to the tacit-knowledge construct as well as to offer suggestions for the refinement of the inventories. We then revised the inventories to accommodate the judgments and suggestions of the focus group members. The resulting Tacit Knowledge Inventories for Military Leaders

were then reproduced for purposes of further validation . A study designed to empirically validate the tacit knowledge construct is described next.

Methods

Once we established the existence of tacit knowledge for military leadership within the U.S. Army officer corp and developed instruments to measure that tacit knowledge, we proceeded to test the proposition that tacit knowledge makes a difference in the effectiveness of Army leaders. This prediction is based directly on our definition of tacit knowledge and the process by which we developed our inventories (see Horvath et al., 1996). It also follows from a body of prior research on the nature and role of tacit knowledge in the workplace. Thus, the major hypotheses tested in the validation study were the following:

H1: Scores on the Tacit Knowledge Inventories for Military Leaders will predict rated leadership effectiveness.

H2: Scores on the Tacit Knowledge Inventories for Military Leaders will provide a significant increment of prediction beyond that provided by a traditional measure of verbal ability.

In order to show that measured tacit knowledge predicts leader effectiveness, we administered our Tacit Knowledge Inventories for Military Leaders (TKML), along with a number of other measures, to active-duty Army officers across the continental United States. In this section, we describe the procedures for gathering evidence of construct validity, including the sample, instruments, data collection procedures, and data analyses.

Sample

We administered our battery of tests (each described in detail below) to a representative sample of Army officers at the three levels under study. Our sample was drawn from 44 battalions stationed at six posts around the United States.³ Table 1 shows the distribution of battalions across these six posts. Table 2 shows the total numbers of subjects on whom complete sets of validation data were obtained.⁴ Although we gathered data in 44 battalions, we only have complete data on 31 battalion commanders. This loss of data is primarily due to the fact that unit operational requirements often precluded us from gathering complete data.

³ A battalion is composed of approximately 700 soldiers, and is commanded by an officer in the grade of lieutenant colonel. On the average, battalions have approximately five companies, each of which has three to four platoons. By sampling intact battalions, we were able to administer the TKML at all three levels of interest (battalion, company, and platoon) and simultaneously obtain multiple judgments of leadership effectiveness.

⁴ Note that brigade commanders participated in our study only as raters of battalion commander effectiveness. Because brigade commanders were not themselves objects of study, they are not represented in Table 2.

Table 1.
Number of Battalions Sampled by Post.

Post	Battalions Sampled
Campbell	10
Drum	5
Carson	4
Bragg	10
Lewis	5
Hood	10

Table 2.
Number of Officers in the Validation Study by Level

Level	Total Number of Subjects
Platoon	368
Company	163
Battalion	31

Instruments

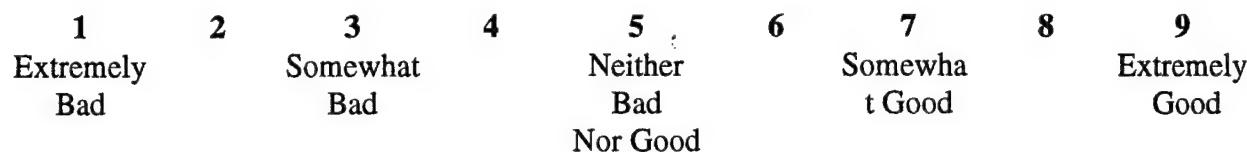
Tacit knowledge for military leadership inventories.

Tacit knowledge inventories of the type developed in our research are intended to measure the experience-based, practically-oriented knowledge of individuals. An inventory consists of a series of problems or scenarios, briefly described. Each scenario is accompanied by a set of possible responses to the situation that it describes. Respondents were asked to rate the quality or advisability of each response option using a nine-point Likert scale. There were three

version of the Tacit Knowledge for Military Leaders (TKML) inventory corresponding to each of the organizational level studied: platoon, company, and battalion. Figure 2 shows a sample question taken from the company commander inventory.

Figure 2.

Sample Question from the Tacit Knowledge Inventory for Military Leaders



You are a company commander, and your battalion commander is the type of person who seems always to "shoot the messenger"--he does not like to be surprised by bad news, and he tends to take his anger out on the person who brought him the bad news. You want to build a positive, professional relationship with your battalion commander. What should you do?

- Speak to your battalion commander about his behavior and share your perception of it.
- Attempt to keep the battalion commander "over-informed" by telling him what is occurring in your unit on a regular basis (e.g., daily or every other day).
- Speak to the sergeant major and see if she/he is willing to try to influence the battalion commander.
- Keep the battalion commander informed only on important issues, but don't bring up issues you don't have to discuss with him.
- When you bring a problem to your battalion commander, bring a solution at the same time.
- Disregard the battalion commander's behavior: Continue to bring him news as you normally would.
- Tell your battalion commander all of the good news you can, but try to shield him from hearing the bad news.
- Tell the battalion commander as little as possible; deal with problems on your own if at all possible.

Inventory scoring procedures.

Procedures for scoring tacit knowledge inventories pose unique challenges in establishing a "correct" answer for test items. Unlike questions on traditional achievement or intelligence tests, less certainty can be attached to the correctness of specific responses on tacit-knowledge tests (Legree, 1995). As the sample question in Figure 2 illustrates, a respondent's ratings depends on his or her interpretation of the problem, an interpretation that is assumed to rely

upon knowledge gained through experience. Therefore, an appropriate standard for response quality is that provided by a group of highly experienced and successful practitioners.

In our study of officer tacit knowledge, expert response profiles were obtained for each of the three versions of the TKML (battalion, company, and platoon) as shown in Table 3. In each case, highly select groups of officers who had recently demonstrated outstanding performance (as defined by the Army's performance evaluation, promotion, and selection system) completed the TKML inventories, providing us with the raw data to construct expert profiles. Students at the Army War College (AWC) served as an expert group for the battalion-level inventory. AWC students are lieutenant colonels and colonels who were selected to attend this school based primarily on their demonstrated excellence as battalion commanders. This is a very select group of officers. Majors and lieutenant colonels attending the Pre-Command Course (PCC) served as an expert group for the company-level inventory. This is also a very select group of officers who, based primarily on their success as company commanders, have been chosen to command battalions. Selection for battalion command is an extremely competitive process. Finally, captains selected "below the zone" for major attending the Command and General Staff College (CGSC) served as an expert group for the platoon-level inventory--a very select group based on their performance at the platoon and company level. By virtue of their experience and accomplishments at the levels in question, these three groups of officers were deemed to represent the experienced and knowledgeable practitioner.

Table 3.

Expert Samples for Scoring the Tacit Knowledge Inventories for Military Leaders.

	Source	n
Battalion Inventory	AWC	59
Company Inventory	PCC	29
Platoon Inventory	CGSC	50

For each TKML inventory, an expert profile was constructed which represents the mean of the experts' ratings for each response option within a question. The level of agreement among the experts was considered acceptable with the standard deviations among experts generally between 1 and 2 on a nine-point scale.

Using the expert profile as a basis for scoring, the performance of each respondent on the TKML was assessed relative to the expert group for his or her current level in the chain-of-command. Scores on the inventory were computed using a distance measure that quantified the

degree of agreement between the subject's responses and that of the expert group. These distance scores reflect the squared deviations from the expert mean for each response summed across all response options within a question. To ensure that options about which the experts did not agree received less weight in the measurement of leaders' tacit knowledge, the distance scores for each response option were weighted by the reciprocal of the standard deviation among experts. In other words, respondents were not penalized for being farther from the expert mean when the experts themselves exhibited disagreement as to the appropriate response.

The distance scores were then summed across all questions in the inventory to obtain an overall score for tacit knowledge. We adjusted the summary scores to compensate for different rating style on the part of respondents (use of scale-range and response bias). Some respondents had a tendency to use more of the scale than others when they rated the quality of response options. These rating styles produced artificially larger distance scores (less expert-like ratings). For example, with an expert mean rating of 8, a respondent who uses a 9 will receive a larger distance score than a respondent who uses an 8. But this may simply reflect the fact that the former uses the entire rating scale (ranging from 1 to 9), while the latter responds more conservatively (ranging from 2 to 8). In order to compensate for artificially larger distances, created simply by differences in rating style, we divided each respondent's overall score on the inventory by the mean standard deviation in their ratings across response options within questions.⁵

Concept Mastery Test.

In addition to the TKML inventories, we administered two other tests to obtain evidence of discriminant validity. The Concept Mastery Test (CMT) is a measure of verbal ability which allowed us to assess the relationship between verbal intelligence and TKML scores and the relative contribution of verbal ability to leadership effectiveness. The test consists of two sections, synonym/antonym problems and analogy problems, and is scored using an answer key. The CMT has been found to correlate highly (.75 to .85) with measures of nonverbal intelligence (Jensen, 1983), and therefore was viewed as a proxy measure of general cognitive ability. Consistent with previous research, we expected scores on the CMT to be uncorrelated or marginally correlated with scores on the TKML, and that score on the TKML would contribute above and beyond scores on the CMT to the prediction of leadership effectiveness.

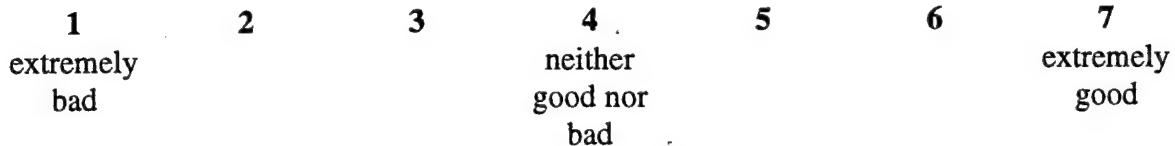
Tacit Knowledge Inventory for Managers.

We also administered the Tacit Knowledge Inventory for Managers (TKIM), designed to measure the experience-based knowledge of civilian managers, to further explore the

⁵ A z transformation of the raw data before computing distances was deemed a less desirable method of correcting for response biases because, unlike many Likert-type scales, the ratings on our tacit knowledge questions only acquire meaning with respect to the expert responses. The formula used to compute z scores involves subtracting each rating from the mean rating across response options, then dividing by the standard deviation across all responses. Since the mean rating lacks substantive meaning, we chose only to correct for the standard deviation and to do so after the distance scores were computed.

discriminant validity of the tacit knowledge for military leadership construct. Like the TKML, the TKIM consists of scenarios and response options which the respondents rate for quality. A sample question from the TKIM is shown in Figure 3. The TKIM has been validated in earlier research and found to be a significant predictor of managerial success (Wagner, 1987; Sternberg et al., 1993). Responses to the TKIM were scored using an expert profile developed by Wagner (1987). The expert group consisted of 13 executives employed by Fortune 500 companies who were at levels above vice-president. As with the TKML inventories, scores on the TKIM were computed using a distance measure that quantified the degree of agreement between the subject's responses and that of the expert group. These distance scores reflect the squared deviations from the expert mean for each response summed across all response options within a question. The distance scores were then summarized across all questions within the inventory. Consistent with Sternberg's concept of practical intelligence, we assumed some underlying ability to acquire tacit knowledge to be reflected in scores on the TKIM, but we expected that scores on the domain-specific TKML would better predict the leadership effectiveness of Army officers.

Figure 3.
Sample Question from the Tacit Knowledge Inventory for Managers



You have been assigned to revise the policy manual for your division of the company. You have six weeks to complete this assignment. The old policy manual was too vague, resulting in several individuals attending to matters only one need handle, and other important matters receiving the attention of no one. Responsibility for the new policy manual is completely yours. The assignment is somewhat of a "hot-potato" because of the effects of division policy on the importance of particular management positions in the division. You believe that how this assignment turns out could have important positive or negative consequences for your career.

- Decide right away if you can come up with a reasonable product that would be satisfactory to most--if not, try to get out of the assignment.
- Learn as much as possible about your superiors' views on policy covered by the manual.
- Stick with revisions your superiors favor or probably could be sold on.
- Get feedback from your superiors on drafts of new policy under consideration.
- Get feedback from those affected by the policy manual on drafts of new policy under consideration.
- Form a committee with representation from every department that will share responsibility for the assignment.
- Find out, if you can, why you, specifically, were chosen for this assignment.
- Use this opportunity to reduce the power of those in the division who do not support you, so long as you can avoid being obvious about it.
- Avoid mentioning by name individuals whose poor performance is the cause for a particular policy revision.
- Don't worry if you miss the deadline for the new policy manual so long as you are making progress.

Subject Variables.

In order to assess the generalizability of our findings across types of jobs within the Army, we asked each subject to report his or her unit designation, from which we inferred the subject's branch category as either combat arms, combat support, or combat service support. That is, based on the type of unit to which an officer was assigned (e.g., 3-325 Infantry Battalion), we

estimated *post hoc* the general branch category in which they served. Table 4 shows the distribution of officers across the three branch categories for each organizational level. In addition to unit designation, we asked each subject to report his or her time in service and time in current position so that we could assess the relationship between job experience and tacit knowledge. We did not collect data on the racial, ethnic, or gender composition of our sample. Earlier research, employing comparable sampling methods and comparable sample sizes, has produced percentages of females and racial minorities which approximate those observed in the U.S. Army officer corp as a whole (Horvath et al., 1996).

Table 4.
Distribution of Officers by Branch Category.

	Battalion	Company	Platoon
Combat Arms	55%	65%	73%
Combat Support	30%	22%	16%
Combat Service Support	15%	13%	11%

Leadership Effectiveness Survey.

We developed a Leadership Effectiveness Survey (LES) to measure the criterion of leadership effectiveness. The LES consisted of single-item measures that asked respondents to rate the effectiveness of other officers on a seven-point scale. An example question from the LES is shown in Figure 4. The survey called for separate judgements of effectiveness in the interpersonal and task-oriented domains of leadership as well as an overall assessment of leadership effectiveness. The format for the LES questions was modeled after the normative process used by senior level raters on the Officer Evaluation Report (OER). In addition to rating different dimensions of effectiveness, respondents rated officers at multiple levels based on the suggested 360-degree approach to performance feedback (Tornow, 1993; Church & Bracken, 1997). According to this approach, differences in rater perspectives are viewed as potentially informative rather than simply error variance. In other words, multiple ratings can represent significant and meaningful sources of variation about perceptions of performance (e.g., Salam, Cox, & Sims, 1997).

In order to obtain multiple perspectives of an officer's leadership effectiveness in our study, respondents were asked to rate the effectiveness of their immediate supervisor, their subordinate officers, and peers in their unit.⁶ By administering the LES to intact chains-of-command, we also obtained multiple ratings of effectiveness from each perspective, with the

⁶ At some levels, a less than complete 360-degree profile was obtained because raters were unavailable, for various reasons, to assess the ratee. Specifically, we did not obtain ratings from the subordinates of platoon leaders or the peers of battalion commanders.

exception of supervisors since each officer only has one immediate supervisor. For those cases in which multiple ratings were obtained (e.g., subordinates, peers), a mean rating was computed for each of the effectiveness dimensions (overall, task, and interpersonal). For the data analysis, ratings on the LES were reverse coded so that higher ratings corresponded to greater perceived effectiveness.

Figure 4.
Sample Question from the Leadership Effectiveness Survey.

Code: _____

Rate your Battalion Commander:

Think about your battalion commander. Compared to all other battalion commanders you have known, **how effective is your battalion commander, overall, as a leader?** Please circle the number under the statement that best corresponds to your rating.

1	2	3	4	5	6	7
The Best	One of the Best	Better than Most	As Good as Most	Not Quite as Good as Most but still gets the job done	Well Below Most	The Worst

Data Collection Procedures

We obtained access to battalions under the auspices of the U.S. Army Research Institute and visited each during its "umbrella weeks" -- periods when the units were not deployed on training exercises and were available to participate in research efforts. Selection of units for participation was made by division, corp, or brigade staff. Scheduling and pre-shipment of surveys was coordinated by a point-of-contact at each post. At the appointed time, the entire available officer chain-of-command for each battalion (approximately 25-30 officers) met at a central location, usually in their battalion conference room, where they completed the test battery including the TKML, TKIM, CMT, and the LES as described above.

Data-collection sessions began with an introductory briefing by the visiting researchers. Subjects were introduced to the study as follows:

We're here as part of a joint Yale/USMA research project under contract to the Army Research Institute. They've asked us to examine the role of informal or "tacit" knowledge in Army leadership. Tacit knowledge is practical knowledge, grounded in personal experience, that is not explicitly taught and is often difficult to articulate. The

goal of this research is to improve the process of leader development through job assignment by understanding the hidden or tacit knowledge that makes leaders effective.

Today we are going to ask you to fill out some questionnaires. Some of these will draw on your knowledge of Army leadership and some will draw on more general knowledge. We are also going to ask you for some ratings of the people you work with. Some of this you may find difficult, but we are going to strictly protect your anonymity and confidentiality, as I'll describe in a moment, so we hope that you will answer candidly.

All of the data we collect today will help us to answer the questions that the Army has asked us to answer—basically about the relationship between informal knowledge, experience, effectiveness, and other variables. We need your best effort here today—your most thoughtful and candid judgments—in order to ensure that the Army gets its money's worth out of this research.

Subjects were assured of the absolute confidentiality of their responses and their informed consent was obtained. Subjects, working at their own pace, then completed the instruments in the test battery. Each session ended when all officers in the battalion had completed the test battery, typically after three to four hours. Completed surveys were inventoried, coded to preserve the subjects' anonymity and to facilitate later analysis, and shipped to Yale University.

- Data Analytic Procedures

Since there were three different versions of the TKML, one for each level under study, we analyzed the data separately by level. The same procedures were followed at each level of analysis: platoon, company, and battalion.

The first step at each level was to examine the psychometric properties of the TKML instrument. The reliability of the TKML was assessed using coefficient alpha, an index of the internal consistency of the questions composing the inventory. We examined item-total correlations (correlations between individual questions and the entire inventory) and inter-item correlations (correlations among individual questions) to identify any questions that did not conform to the inventory as a whole. Questions that exhibited a low correlation with the overall inventory and either nonsignificant or negative correlations with a majority of questions were examined more closely and considered for removal before computing an overall score for the TKML.

The next step was to examine the intercorrelations among the dimensions of the LES (overall, task, interpersonal) for each type of rater (subordinate, peer, superior). The degree of association within raters and within dimensions was examined using a multimethod-multitrait (MTMM) analysis (Campbell & Fiske, 1959). A MTMM analysis is typically used to provide evidence of convergent and discriminant validity. Ratings of the same trait (e.g., leadership dimension) are expected to correlate more highly (converge) using different methods (e.g., raters) than ratings across traits using a single method. In our study, we obtained ratings from multiple perspectives based on the assumption that different raters would have different perceptions of leadership effectiveness. Therefore, we expected the correlations to be lower

across raters for the same leadership dimensions than across dimensions for a single rater perspective. Within each rater perspective, we also examined the correlations between task, interpersonal, and overall ratings for evidence that these aspects of leadership effectiveness represented distinct constructs.

After examining properties of the TKML and LES, we computed the intercorrelations among the predictor variables--TKML, TKIM, the two CMT subtests, and time-in-job. These intercorrelations were examined to assess the discriminant validity of the TKML. That is, to what extent is the TKML related to other potential predictors of leadership effectiveness. Then we examined the correlations between the predictor variables and ratings on the LES. This allowed us to compare the association between scores on the TKML and LES ratings relative to the other variables we measured. Finally, based on the results of the correlational analyses, hierarchical regression analyses were performed to test the incremental validity of the TKML over the CMT and the TKIM.

Results

The objective of this study was to provide preliminary evidence of the construct validity of the Tacit Knowledge Inventory for Military Leaders (TKML). We had two main hypotheses: (1) our measure of tacit knowledge for military leadership would predict leadership effectiveness, and (2) tacit knowledge for military leadership would contribute to the prediction of effectiveness beyond a traditional measure of intellectual ability. Since the TKML instruments were developed uniquely for each level, the results are presented separately for platoon, company, and battalion.

Platoon Leaders

The Tacit Knowledge for Military Leaders inventory.

The TKML for platoon leaders initially consisted of 16 questions (Appendix A). The reliability of the overall TKML, measured by coefficient alpha, was .68. The final versions of comparable instruments are generally considered to have good reliability if their coefficient alphas are .80 or higher. Therefore, since this is the initial version of the TKML, we felt that the reliability obtained was quite promising in regards to the internal consistency of our instrument. An examination of the item-total and inter-item correlations confirmed that the questions generally measured the same construct--most questions correlated significantly with one another. There was one question (P1) that exhibited a low correlation with the overall inventory. An examination of the content of this question suggested that it may have been too narrow in focus (referring to chemical platoon leaders). Therefore, this question was removed before computing a summary score for the overall inventory. The final inventory contained 15 questions and had a reliability of .69.

Ratings of leadership effectiveness.

Ratings of leadership effectiveness for platoon leaders were obtained from peers and superiors on the three dimensions of effectiveness (overall, interpersonal, task). We did not obtain ratings from subordinates (platoon sergeants and squad leaders) because mission requirements precluded gathering data from noncommissioned officers in each battalion. On average, platoon leaders were rated by one supervisor and two peers (Table 5). The pattern of intercorrelations among all six effectiveness ratings (3 dimensions X 2 rater perspectives) were examined using the multitrait-multimethod (MTMM) approach described above. As shown in Table 6, we obtained the expected pattern of correlations. The intercorrelations across rater perspectives for the same dimension (shown in bold) are lower than the intercorrelations across leadership dimensions for a single rater perspective (shown in italics). The correlation between peer and superior ratings was .39 for overall effectiveness, .26 for interpersonal effectiveness, and .34 for task effectiveness. The average intercorrelation among peer ratings was .73 and for superiors it was .80. Within raters, the correlations between task and interpersonal ratings were generally lower (.64 for peers and .75 for superiors), suggesting that these are related but potentially distinct constructs. These results suggest that peers and superiors rate effectiveness differently, leading us to include all six effectiveness ratings in subsequent analyses.

Table 5.
Mean Number of Raters per Platoon Leader.

Dimension	Peer	Superiors
Overall	2	1
Interpersonal	2	1
Task	2	1

Table 6.
Intercorrelations Among Effectiveness Ratings for Platoon Leaders.

		Peer (n=385)			Superior (n=277)				
		M	SD	Over	Interp	Task	Over	Interp	Task
Peer	Over	3.25	.86	--					
	Interp	3.44	.89	.71	--				
	Task	3.17	.87	.84	.64	--			
Superior	Over	3.05	1.20	.39	.33	.38	--		
	Interp	3.16	1.17	.31	.26	.30	.79	--	
	Task	3.05	1.19	.33	.25	.34	.85	.75	--

Note: All correlations are significant with $p < .05$.

Discriminant validity of the TKML for platoon leaders.

Table 7 presents the means, standard deviations, and intercorrelations for the TKML, the TKIM, the CMT subscale scores,⁷ and job experience. Scores on the TKML correlated significantly with the TKIM and the CMT-Analogy scores. Specifically, tacit knowledge for military leadership was associated with greater tacit knowledge for managers ($r = .36, p < .01$) and greater verbal ability ($r = -.18, p < .01$).⁸ Experience, as measured by months in current job, did not correlate significantly with tacit knowledge for military leadership. As noted earlier, it is not the amount of experience one has, but what one learns from that experience that counts. Therefore, the absence of a correlation between experience and TKML does not necessarily challenge the underlying assumptions of tacit knowledge acquisition. The moderate correlation between tacit knowledge for military leadership and tacit knowledge for managers is consistent with Sternberg's conception of an underlying ability to acquire tacit knowledge. The finding of a relationship between tacit knowledge for military leadership and verbal ability differs from previous work on tacit knowledge. However, this result is consistent with an extensive body of research that reveals a moderate association between intelligence and leadership (correlation coefficients averaging approximately .28) (Bass, 1981, p. 50). The more important question in this study is how these variables contribute to our understanding of leadership effectiveness.

Table 7.
Means, Standard Deviations, and Intercorrelations Among Predictor Variables for Platoon Leaders.

	n	M	SD	1	2	3	4	5
1. TKML ^a	353	156.44	51.71	--				
2. TKIM ^a	348	148.50	56.64	.36**	--			
3. CMT-Analogy	346	35.11	8.81	-.18**	-.16**	--		
4. CMT-Synonym	344	43.80	20.07	-.02	-.03	.41**	--	
5. Months in Job	344	7.20	5.83	.02	-.02	-.06	.00	--

* $p < .05$ ** $p < .01$

^a A smaller value on the TKML and TKIM reflects greater tacit knowledge.

⁷ Although there are no known norms for the CMT, the means and standard deviations are comparable to those found by Hocevar (1980) using an undergraduate sample. For the Analogy portion he obtained a mean of 40.76 and a standard deviation of 9.72. For the Synonym portion the mean was 39.65 and the standard deviation was 19.12.

⁸ A negative correlation reflects the fact that lower scores on the TKML correspond to greater tacit knowledge (smaller distances between respondent and experts), while higher score on the CMT correspond to greater verbal ability.

Predictive validity of the TKML for platoon leaders.

Table 8 shows the zero-order correlations between the predictor variables and ratings of leadership effectiveness. Scores on the TKML correlated significantly with overall, interpersonal, and task effectiveness as rated by superiors ($r = -.14$, $-.20$, and $-.14$ respectively, $p < .05$). These findings suggest that tacit knowledge is associated with leadership effectiveness as perceived by superiors. Verbal ability exhibited a significant relationship only with ratings of task-oriented leadership by superiors ($r = .16$, $p < .01$ for the analogy test). Neither tacit knowledge for managers or experience related to perceived effectiveness. Again, this reinforces our claim that more experience does not insure that one will become an effective leader.

Table 8.
Correlations Between Predictor Variables and Effectiveness Ratings for Platoon Leaders.

	Overall	Peer Interp	Task	Overall	Superior Interp	Task
TKML ^a	-.08 (286)	-.03 (285)	-.03 (284)	-.14* (278)	-.20** (279)	-.14* (275)
TKIM ^a	-.09 (282)	.00 (281)	-.07 (280)	.06 (274)	-.03 (275)	.02 (271)
CMT-Analogy	-.05 (279)	-.06 (278)	-.02 (277)	.10 (272)	.09 (273)	.16** (269)
CMT-Synonym	.04 (278)	.12 (277)	.05 (276)	.04 (270)	.03 (271)	.05 (267)
Months in Job	.03 (276)	.01 (275)	.03 (274)	.05 (270)	.07 (272)	.06 (267)

* $p < .05$ ** $p < .01$

^aA smaller value on the TKML and TKIM reflects greater tacit knowledge.

Note: Sample sizes are indicated in parentheses.

For those zero-order correlations between TKML and LES that were significant, a more rigorous test was performed to assess the predictive validity of the TKML for platoon leaders and examine its contribution to the understanding of leadership effectiveness above measures of verbal ability and tacit knowledge for managers. Hierarchical regression analysis was used to test the incremental validity of the TKML above the CMT and TKIM scores in predicting leadership effectiveness. In the regression, scores on the CMT subtests and the TKIM were entered in the first step and scores on the TKML entered in the second. A significant change in R^2 in the second step indicates that leadership effectiveness can be explained by the TKML beyond verbal ability and tacit knowledge for managers. Table 9 presents values for the multiple R , R^2 , and regression coefficients for each of the variables in the regression. A significant change in the R^2 is indicated by an asterisk in the second column. For all three effectiveness ratings made by superiors, tacit knowledge for military leadership provided a significant

increment in prediction above CMT and TKIM scores. The multiple Rs for the entire model were .19, .20, and .19 for overall, interpersonal, and task effectiveness respectively.

Table 9.

Incremental Validity of the TKML on Ratings of Platoon Leaders' Effectiveness by Superiors.

Step	Overall (n=270)			Interpersonal (n=271)			Task (n=267)		
	R	R ²	b	R	R ²	b	R	R ²	b
1.CMT-Analogy			.10			.08			.18*
CMT-Synonym			.00			.00			.01
TKIM ^a	.13	.02	.13*	.10	.01	.06	.18*	.03*	.10
2. TKML ^a	.19*	.04*	-.15*	.21*	.05**	-.19*	.21*	.05*	-.12*

* p < .05 ** p < .01

^aA smaller value on the TKML and TKIM reflects greater tacit knowledge.

Additional analyses were conducted to determine if the TKML for platoon leaders represented multiple dimensions of tacit knowledge. In developing the tacit knowledge inventories, efforts were made to capture a representative sample of the tacit knowledge domain identified in our earlier studies. This earlier work also suggested possible categories of tacit knowledge. In order to investigate more fully the structure of the TKML inventory, we explored the possibility of developing subscales and testing their predictive potential. An initial examination of the intercorrelations among individual questions in the TKML for platoon leaders did not suggest different patterns of correlations among questions. This was confirmed by a principal components factor analysis of the TKML. A single factor solution was determined to best represent the data based on an analysis of the scree plot and the factor solution. An examination of the factor pattern matrix for alternative solutions did not reveal any readily interpretable factors. Therefore, we concluded that the overall measure of tacit knowledge for platoon leaders best represented the data.

Finally, we explored differences in the predictive validity of the TKML across branch categories. As discussed earlier, branches of service were categorized as either combat arms, combat support, or combat service support. Moderated regression analyses revealed no significant differences in the relationship between tacit knowledge and leadership effectiveness across branch categories. Since the majority of platoon leaders were categorized as combat arms officers (73%), the relatively smaller representation of combat support and combat service support officers may have limited our ability to detect branch differences.

To summarize, at the platoon level there is evidence that tacit knowledge for military leadership is relevant to interpersonal, task, and overall effectiveness as seen by superiors. The results also suggest that our measure of tacit knowledge predicts the effectiveness of platoon leaders beyond a traditional measure of verbal ability and a measures of tacit knowledge for managers.

Company Commanders

The Tacit Knowledge for Military Leaders Inventory.

The initial TKML for company commanders consisted of twenty questions (see Appendix B). The reliability of the overall TKML for company commanders, measured by coefficient alpha, was .75, suggesting that the questions in the TKML inventory measured tacit knowledge with reasonable consistency. An examination of the item-total and inter-item correlations revealed two questions (C4 and C5) that exhibited low correlations with the overall inventory and generally correlated poorly with the other inventory questions. A closer examination of question C4 revealed that it only consisted of four response options and may not have adequately tapped differences in tacit knowledge. An examination of question C5 suggested that the knowledge it represented may have been widely held among officers, and may not have reflected knowledge that was truly tacit. Therefore, these questions were removed before computing an overall score on the inventory. The final version of the TKML used in subsequent analyses consisted of 18 questions with a reliability of .76.

Ratings of leadership effectiveness.

Ratings of leadership effectiveness for company commanders were obtained from peers, superiors, and subordinates on three dimensions of leadership (task, interpersonal, overall). On average, company commanders were rated by two subordinates, three peers, and one superior (Table 10). The MTMM matrix of the intercorrelations among all nine effectiveness ratings (3 dimensions X 3 rater perspectives) is presented in Table 11. As with platoon leaders, the intercorrelations across rater perspectives for the same dimension (shown in bold) are lower than the intercorrelations across leadership dimensions for a single rater perspective (shown in italics). The average intercorrelation across rater perspectives was .28 for overall effectiveness, .32 for interpersonal effectiveness, and .28 for task effectiveness. The average intercorrelation among dimensions was .81 for subordinate ratings, .71 for peer ratings, and .73 for subordinate ratings. Within raters, the correlations between task and interpersonal ratings were generally lower, ranging from .64 to .77. These results suggests that peers, superiors, and subordinates perceive effectiveness differently. Furthermore, raters appear to make distinctions between ratings of task and interpersonal effectiveness. Therefore, we included all nine ratings of leadership effectiveness in subsequent analyses.

Table 10.
Mean Number of Raters per Company Commander.

Dimension	Subordinates	Peer	Superiors
Overall	2	3	1
Interpersonal	2	3	1
Task	2	3	1

Table 11.

Intercorrelations Among Ratings of Leadership Effectiveness for Company Commanders

		Subordinate (n=140)			Peer (n=157)			Superior (n=115)				
		M	SD	Over	Interp	Task	Over	Interp	Task	Over	Interp	Task
Subordinate	Over	3.19	1.25	--								
	Interp	3.32	1.37	.86	--							
	Task	3.08	1.22	.85	.77	--						
Peer	Over	3.17	.73	.35	.30	.35	--					
	Interp	3.33	.85	.32	.31	.27	.79	--				
	Task	3.09	.73	.27	.19	.33	.77	.64	--			
Superior	Over	2.94	1.23	.26	.25	.27	.25	.23	.29	--		
	Interp	3.12	1.19	.37	.39	.31	.26	.31	.22	.79	--	
	Task	2.86	1.32	.16	.09	.17	.25	.24	.34	.83	.67	--

Note: All correlations above .20 are significant at p < .05.

Discriminant validity of the TKML for company commanders.

Table 12 presents the means, standard deviations, and intercorrelations among the TKML, the TKIM, the CMT scores, and job experience for company commanders. As with the platoon leaders, scores on the TKML correlated significantly with the TKIM and the CMT-Analogy subtest. Specifically, tacit knowledge for military leadership was associated with greater tacit knowledge about managing ($r = .32$, $p < .01$) and greater verbal ability ($r = -.25$, $p < .01$). Again, experience, as measured by months in current job, did not correlate significantly with tacit knowledge for military leadership.

Table 12.
Means, Standard Deviations, and Intercorrelations Among Predictor Variables for Company Commanders.

	n	M	SD	1	2	3	4	5
1. TKML ^a	163	132.19	48.39	--				
2. TKIM ^a	159	138.71	52.45	.32**	--			
3. CMT-Analogy	157	37.19	9.02	-.25**	-.17*	--		
4. CMT-Synonym	156	47.69	20.67	-.13	-.14	.61**	--	
5. Months in Job	154	8.80	5.55	.08	-.02	.00	-.03	--

* $p < .05$ ** $p < .01$

^aA smaller value on the TKML and TKIM reflects greater tacit knowledge.

Predictive validity of the TKML for company commanders.

Table 13 presents the zero-order correlations between the predictor variables and all nine ratings of leadership effectiveness. Scores on the TKML correlated significantly with overall and task effectiveness as rated by peers ($r = -.19$ and $-.20$ respectively, $p < .05$). Scores on the CMT subtests correlated significantly with subordinate ratings of effectiveness on all three dimensions and with peer ratings of overall and interpersonal effectiveness. In all cases, the direction of these correlations indicated that greater verbal ability was associated with lower ratings of effectiveness. Neither tacit knowledge for managers nor experience correlated significantly with any of the effectiveness ratings. The finding that higher scores on the CMT were associated with lower effectiveness ratings suggests that tacit knowledge for military leadership is more relevant to effective leadership than verbal ability.

Table 13.
Correlations Between Predictor Variables and Effectiveness Ratings for Company Commanders.

	Overall	Subordinate Interp	Task	Overall	Peer Interp	Task	Overall	Superior Interp	Task
TKML ^a	-.02 (140)	-.04 (140)	-.08 (140)	-.19* (157)	-.11 (157)	-.20* (157)	-.11 (115)	-.01 (115)	-.03 (115)
TKIM ^a	.11 (137)	.12 (137)	.08 (137)	.05 (154)	.04 (154)	.04 (154)	.13 (112)	.15 (112)	.09 (112)
CMT-Analogies	-.18* (136)	-.16 (136)	-.12 (136)	-.18* (153)	-.20* (153)	-.05 (153)	.02 (112)	.01 (112)	-.04 (112)
CMT-Synonyms	-.22** (135)	-.21* (135)	-.17* (135)	-.14 (152)	-.12 (152)	-.07 (152)	.07 (111)	.06 (111)	.00 (111)
Months in Job	-.13 (136)	-.07 (136)	-.06 (136)	-.08 (151)	-.07 (151)	.03 (151)	-.07 (114)	.04 (114)	-.06 (114)

* p < .05 ** p < .01

^a A smaller value on the TKML and TKIM reflects greater tacit knowledge.
Note: Sample sizes are indicated in parentheses.

In order to further assess the contribution of tacit knowledge for military leadership over and above verbal ability and tacit knowledge for managers, hierarchical regression analyses were conducted for peer ratings of effectiveness. Table 14 presents values for the multiple R, R^2 , and regression coefficients for each of the variables in the regression. Again, a significant change in the R^2 is indicated by an asterisk in the second column. For all three effectiveness ratings by peers, tacit knowledge for military leadership provided a significant increment in prediction over verbal ability and tacit knowledge for managers, even when these variables contributed a significant prediction in the first step of the regression analysis. The multiple Rs for the overall models are .32, .27, and .25 for overall, interpersonal, and task effectiveness respectively.

Table 14.

Incremental Validity of the TKML on Ratings of Company Commanders' Effectiveness by Peers.

Step	Overall (n=157)			Interpersonal (n=157)			Task (n=157)		
	R	R^2	b	R	R^2	b	R	R^2	b
1. CMT-Analogy			-.21*			-.23*			-.08
CMT-Synonym			-.02			-.01			-.04
TKIM ^a	.20	.04	.13	.21	.04	.05	.09	.01	.13
2. TKML ^a	.32**	.10**	-.27**	.27*	.07*	-.19*	.25*	.06*	-.25**

* p < .05 ** p < .01

^aA smaller value on the TKML and TKIM reflects greater tacit knowledge.

Additional analyses were conducted to explore the structure of the TKML for company commanders. The initial examination of the intercorrelations among inventory questions suggested certain patterns of relationships among the questions. That is, higher correlations were observed among some subsets of questions than others. In order to identify possible subscales of the TKML, a principal components factor analysis was performed on the company data. The initial solution confirmed our observations based on the pattern of intercorrelations--the TKML for company commanders appeared to consist of multiple factors. An examination of the scree plot suggested the possibility of either a four or seven factor solution (i.e., we observed breaks in the plot at two points, following four and seven factors). We then rotated the factors using an oblique rotation and examined the factor pattern matrices for these alternative solutions. We determined that the four-factor solution provided a better representation of the data based on the factor loadings and the number of questions loading on each factor. A content analysis of these factors suggested that two of the factors could be labeled conceptually. The first consisted of seven questions that represented tacit knowledge about dealing with the boss ($\alpha = .61$), and the second consisted of five questions that represented tacit knowledge for motivating and developing subordinates ($\alpha = .60$). The remaining two factors consisted of four and two questions respectively and were not labeled. The two interpretable factors were consistent with findings from earlier phases of the project where experts were asked to sort the tacit knowledge according to developmental challenges (Horvath et al., 1994; Forsythe et al., 1995).

Scores were constructed for these two subscales using the questions that loaded on each factor. The predictive validity of these subscale scores was then examined. Subscale scores representing tacit knowledge about managing the boss correlated significantly with ratings of overall effectiveness by superiors ($r = -.17$, $p < .05$) and provided significant incremental prediction beyond verbal ability and tacit knowledge for managers ($\Delta R^2 = .06$, $p < .05$). The overall model R for superior ratings of overall effectiveness was .28. Subscale scores representing tacit knowledge for motivating and developing subordinates correlated significantly with ratings of task effectiveness by subordinates ($r = -.15$, $p < .05$) and provided a significant increment in prediction beyond verbal ability and tacit knowledge for managers ($\Delta R^2 = .03$, $p < .05$). The overall model R for subordinate ratings of task effectiveness was .25.

Finally, we explored the effects of branch category on the relationship between tacit knowledge and leadership effectiveness. As with the platoon leaders, the majority of company commanders were categorized as combat arms officers (65%). Again, we did not find any significant differences in predictive validity based on branch category.

To summarize, the findings at the company level suggest that tacit knowledge for military leadership is associated with how peers view the effectiveness of their fellow company commanders. Furthermore, questions that tap into tacit knowledge about relationships with the boss are those that predict ratings of overall effectiveness by superiors. Questions that deal with motivating and developing subordinate relationships are the ones that predict judgments by subordinates of the task-oriented effectiveness of their company commanders. These results also suggest that tacit knowledge for military leadership predicts the effectiveness of company commanders above a traditional measure of verbal ability and a measure of tacit knowledge for managers.

Battalion Commanders

The Tacit Knowledge for Military Leaders inventory.

The initial TKML for battalion commanders consisted of 16 questions (see Appendix C). The reliability of the overall TKML, measured by coefficient alpha, was .59. The lower reliability of the battalion inventory relative to the platoon and company inventories may be attributable to the size of the battalion sample. This index is only based on the 31 battalion commanders for which we obtained TKML data. However, as with the platoon and company data, we also examined the item-total and inter-item correlations to identify questions that potentially contributed to the lower reliability. Five questions were identified that correlated poorly with the overall inventory and did not correlate with the majority of other questions. An examination of these questions offered some indication as to why they may have exhibited such low correlations with the rest of the inventory. Two questions (B1 and B16) were deemed to represent knowledge that was widely recognized and thus did not adequately fit our definition as being tacit. For two other questions (B4 and B12) it was determined that the questions may not have clearly defined the problem and that respondents may have misinterpreted the question. The remaining question (B15) was considered to be too narrow in focus (referring to military intelligence). After closer examination of these questions, we decided to remove them from the

inventory before computing an overall score. The final inventory containing 11 questions had a reliability of .66.

Ratings of leadership effectiveness.

Ratings of leadership effectiveness for battalion commanders were obtained from superiors and subordinates on the three dimensions of leadership (task, interpersonal, overall). Peer ratings would have been difficult to obtain and of less value because battalion commanders have much less contact with one another on a daily basis. On average, battalion leaders were rated by three subordinates and one superior (Table 15). A MTMM matrix of the intercorrelations among the six effectiveness ratings (3 dimensions X 2 rater perspectives) is presented in Table 16. Once again, the intercorrelations across rater perspectives for the same dimension (shown in bold) are lower than the intercorrelations across leadership dimensions for a single rater perspective (shown in italics). In fact, none of the correlations between rater perspectives are significant. The intercorrelation between subordinate and superior ratings was .03 for overall effectiveness, .03 for interpersonal effectiveness, and -.15 for task effectiveness. For subordinate ratings, the average intercorrelation between dimensions was .74 and for superior ratings it was .44. Within raters, the correlations between task and interpersonal ratings were .66 for subordinates and .16 for superiors. Clearly, there are differences in how superiors and subordinates view the effectiveness of battalion commanders. These results also suggest that raters distinguish between task and interpersonal dimensions of leadership. Therefore, we included all six ratings of leadership effectiveness in subsequent analyses.

Table 15.
Mean Number of Raters per Battalion Commander.

Dimension	Subordinates	Superiors
Overall	3	1
Interpersonal	3	1
Task	3	1

Table 16.
Intercorrelations Among Ratings of Leadership Effectiveness for Battalion Commanders.

		M	SD	Subordinates (n=31)			Superior (n=24)		
				Over	Interp	Task	Over	Interp	Task
Subordinates	Over	2.97	1.09	--					
	Interp	2.91	1.26	.88*	--				
	Task	2.81	.85	.85*	.66*	--			
Superior	Over	2.42	.83	.03	-.09	-.09	--		
	Interp	2.43	.84	-.07	.03	-.20	.59*	--	
	Task	2.29	.81	-.21	-.37	-.15	.59*	.16	--

* p < .05 ** p < .01

Discriminant validity of the TKML for battalion commanders.

Table 17 presents the means, standard deviations, and intercorrelations among the TKML, the TKIM, the CMT scores, and job experience for battalion commanders. Unlike the platoon and company officers, there were no significant correlations between the TKML and any other predictor variable. A significant correlation was found between months in job and scores on the CMT-Synonym subtest indicating that more experience was associated with lower scores on the CMT ($r = -.48$, $p < .05$).

Table 17.

Means, Standard Deviations, and Intercorrelations Among Predictor Variables for Battalion Commanders.

	n	M	SD	1	2	3	4	5
1. TKML ^a	31	72.12	20.78	--				
2. TKIM ^a	31	137.31	42.92	-.06	--			
3. CMT-Analogy	30	37.17	9.93	-.19	-.08	--		
4. CMT-Synonym	30	36.63	21.72	.02	-.25	.67*	--	
5. Months in Job	22	15.36	5.77	-.19	-.02	-.13	-.48*	--

* $p < .05$ ** $p < .01$

^aA smaller value on the TKML and TKIM reflects greater tacit knowledge.

Predictive validity of the TKML for battalion commanders.

Table 18 presents the zero-order correlations between the predictor variables and the six ratings of leadership effectiveness. Scores on the TKML correlated significantly with ratings of overall effectiveness by superiors ($r = -.42$, $p < .05$). Scores on the TKIM related significantly to ratings of task effectiveness by subordinates ($r = -.36$, $p < .05$). There were no significant relationships between scores on the CMT scales or experience and any of the effectiveness ratings.

Table 18.
Correlations Between Predictor Variables and Effectiveness Ratings for Battalion Commanders.

	Subordinate			Superior		
	Overall 1	Interp	Task	Overall 1	Interp	Task
TKML	.02 (31)	.15 (31)	.02 (31)	-.42* (24)	-.13 (24)	-.19 (24)
TKIM	-.24 (31)	-.23 (31)	-.36* (31)	.07 (24)	.03 (24)	-.03 (24)
CMT-Analogy	.20 (30)	.26 (30)	.05 (30)	.18 (23)	.27 (23)	-.04 (23)
CMT-Synonym	.19 (30)	.31 (30)	.08 (30)	.07 (23)	.30 (23)	-.22 (23)
Months in Job	.23 (22)	.18 (22)	.13 (22)	-.32 (17)	-.17 (17)	-.07 (17)

* p < .05 ** p < .01

^aA smaller value on the TKML and TKIM reflects greater tacit knowledge.

Note: Sample sizes are indicated in parentheses.

The limited sample size for the battalion commanders precluded us from testing the incremental validity of the TKML using hierarchical regression analysis. However, the pattern of correlations suggests that the TKML should predict leadership effectiveness better than the CMT in view of the fact that the CMT was not significantly related to any of the effectiveness ratings. Although these results are preliminary and tentative based on the sample size, they do suggest that tacit knowledge for military leadership is associated with how superior officers view the overall effectiveness of battalion commanders. Furthermore, from the subordinate's perspective, task-oriented leadership effectiveness appears to be more associated with tacit knowledge for management than tacit knowledge for leadership. This finding may be explained *post hoc* by considering the battalion commander's role. Both Army doctrine and our previous research suggest that a major challenge for battalion commanders is in fact managing a complex system.

Summary of Results

Across the three levels of analysis we obtained some consistent results and some findings that were unique to particular levels. At all three levels, we found that some aspect of tacit knowledge for military leadership was associated with perceptions of leadership effectiveness by superiors. In particular, the dimension of overall leadership effectiveness was most consistently predicted by tacit knowledge for military leadership across the three levels. Since the method for evaluating performance in the Army relies heavily on ratings by superiors, this finding speaks directly to the importance of tacit knowledge in leadership effectiveness. Furthermore, we consistently found that tacit knowledge for military leadership predicted superior ratings of

effectiveness beyond alternative measures such as verbal ability and tacit knowledge for managers.

In terms of differences that emerged across levels, the primary one was the multiple dimensions of tacit knowledge represented in the company commander inventory. This led to findings that certain aspects of tacit knowledge were more associated with perceptions of leadership effectiveness than others. In particular, we identified different tacit knowledge about dealing with superiors and about dealing with subordinates. These aspects of tacit knowledge corresponded to ratings of effectiveness by superiors and subordinates respectively. The reason why similar dimensions of tacit knowledge did not emerge at the platoon level may reflect differences in the amount of role differentiation at each level. At the battalion level the sample size was insufficient to explore the dimensionality of the tacit knowledge inventory.

The company level was also unique in that tacit knowledge for military leadership related to effectiveness ratings for all three of the perspectives obtained. Again, this may reflect the specific nature of the company commander role or the opportunity for raters to observe the performance of company commanders. Alternatively, company commanders may have more experience assessing the leadership of fellow officers, which may explain why peer ratings related to tacit knowledge scores at the company but not the platoon level. At the battalion level, we found that subordinate ratings were associated with tacit knowledge for managers, indicating possibly unique requirements associated with the role of battalion commanders.

Overall, the results offer preliminary evidence at all three levels that tacit knowledge for military leadership is related to perceived effectiveness. Furthermore, they provide us with some insight as to the developmental challenges and unique nature of the leadership role at three levels in the Army. In the final section of this report, we discuss these findings further and offer some general suggestions regarding potential applications to leadership development.

Discussion

We set out in this study to address two primary questions: (1) Can tacit knowledge be reliably measured? and (2) Does the possession of tacit knowledge make a difference in the leadership effectiveness of Army officers? The results of our preliminary effort to validate the construct of tacit knowledge for military leadership suggest affirmative answers to both these questions. The reliability of the initial versions of our TKML inventories appear to be very promising. At all three organizational levels, there was a reasonable level of internal consistency among the questions that composed the tacit knowledge inventories. Through further refinements of these inventories we expect that the reliability of our measures will increase.

With regards to the question of whether tacit knowledge makes a difference, we found evidence at each of the three levels that it does. For platoon, company, and battalion officers, our measure of tacit knowledge for military leadership predicted ratings of leadership effectiveness as viewed from one or more perspectives. For every case in which the TKML was significantly related to effectiveness ratings, it also predicted leadership effectiveness above and beyond measures of verbal ability and tacit knowledge for managers.

In addition to confirming our hypotheses, the findings provided insights about the nature of tacit knowledge for military leadership at each organizational level. At all three levels, our TKML inventories were predictive of effectiveness as rated by superiors. For platoon leaders and battalion commanders, the overall score on the TKML predicted how they were perceived by their superiors. For company commanders, scores on the TKML subscale about managing the boss predicted effectiveness as seen by their superiors. The finding that officers who possess tacit knowledge are consistently viewed by their superiors as more effective leaders is not surprising in view of the way we scored the TKML. The expert profile we developed to score the TKML inventories was based on the responses of officers who were highly successful leaders, as reflected in their performance evaluations rendered by their superiors. Therefore, we would expect that respondents who exhibited greater tacit knowledge, (i.e., officers whose responses more closely resembled the experts') would be perceived as more effective by their superiors. Furthermore, these findings suggests that tacit knowledge makes a difference in perceptions of effectiveness that potentially have an important influence on professional success in the Army.

Another insight we obtained is that leaders may be rated differently depending on who is rating their effectiveness. We obtained ratings from multiple perspectives based on the 360-degree approach to performance feedback suggested in the literature (Tornow, 1993; Church & Bracken, 1997) and our expectation that raters would differ in their perceptions of effectiveness. Our results confirmed these expectations. We found that tacit knowledge was not necessarily related to perceived effectiveness for all raters. At the platoon level, peer ratings of effectiveness did not reflect the possession of tacit knowledge although superior ratings did. At the battalion level, scores on the TKML did not predict subordinates' ratings of effectiveness, but instead their ratings reflected the influence of tacit knowledge for managers. We obtained the most complete profile of effectiveness ratings at the company level, which is where we also found the most revealing data about the relationship between tacit knowledge and leadership effectiveness.

At the company level, tacit knowledge for military leadership predicted leadership effectiveness as viewed by peers and subordinates as well as superiors. We also found that different aspects of tacit knowledge may factor into those ratings of effectiveness. Peer ratings reflected the influence of scores on the overall TKML inventory. But subordinate and superior ratings were related to subsets of the TKML questions. Tacit knowledge about motivating and developing subordinates predicted how company commanders were perceived by their subordinates, while tacit knowledge about managing the boss predicted how they were perceived by their superiors. These results are consistent with the way in which we characterized the challenges associated with leadership at the company level (Horvath et al., 1994; Forsythe et al., 1995). The company commander is "caught in the middle," and must learn how to motivate and develop subordinates, cooperate with peers, and simultaneously perform as part of a larger complex organization (a battalion). Officers who possess tacit knowledge at this level are perceived as more effective in the ways that are most relevant to those with whom they interact.

Taken together, our results offer promising evidence regarding the validity of the tacit knowledge for military leadership construct and the instruments we have developed to measure it. Along with the findings from earlier studies in this project, we have identified and reliably

measured a subset of the domain of military leadership expertise that represents tacit knowledge. Possessing this knowledge makes a difference in leadership effectiveness on the job--officers who possess it are perceived as more effective than those who do not.

Tacit Knowledge Theory and Methodology

In addition to supporting the goals of our research project, our work also contributes to the broader tacit knowledge literature. We have expanded the study of tacit knowledge to a new domain, that of military leadership, and in the process made some refinements to our methodology.

The domain of military leadership posed a number of interesting research challenges. First, unlike many other professions, the features of successful leadership in the Army change as one transcends the organizational hierarchy. Our previous work found that the tacit knowledge for leadership varies as a function of the developmental challenges officers face at each level in the chain-of-command. Consequently, we identified and assessed tacit knowledge at three different levels: platoon, company, and battalion.

Second, as with most leadership research, we faced the challenge of selecting a valid criterion for measuring leadership effectiveness. Drawing on recent work in the area of performance appraisal, we obtained ratings of perceived effectiveness from multiple, independent sources. Our findings support the use of a 360-degree approach to measuring performance and are consistent with other research that has found notions of leadership effectiveness to depend on the point of view of the rater (Salam et al., 1997). Using these ratings, we established a relationship between tacit knowledge and leadership effectiveness, and thus provided preliminary evidence of construct validity. Future research might consider additional criteria for assessing leadership effectiveness such as organizational performance or officer career success and attempt to obtain more complete rating profiles at each organizational level.

Methodologically, this study represents a more rigorous test of the tacit knowledge framework than previous work. We used independent samples to identify the tacit knowledge, validate the content, build the expert profiles, and validate the TKML instruments. Unlike much of the previous research by Sternberg and colleagues, we did find a relationship between tacit knowledge and our measure of verbal intelligence at two of the three levels of analysis. As discussed earlier, this finding is consistent with research on the relationship between intelligence and leadership (Bass, 1981). Even with a more rigorous methodology, and the finding of a relationship between tacit knowledge and verbal intelligence, we still found that tacit knowledge predicted leadership effectiveness above and beyond verbal intelligence.

Limitations and Recommendations

Although our findings present preliminary yet convincing evidence for the validity of the tacit knowledge construct in the domain of military leadership, this study has limitations that should be addressed in subsequent research. First, the TKML instruments should be refined in light of our findings to improve internal consistency reliability. We briefly characterized some

of the problems we identified when examining questions that did not adequately “fit” with the overall inventories. Some of these questions might be removed from the instrument while others may be revised to better fit with the inventory. Second, in order to test the predictive validity of the TKML for battalion commanders we would need to obtain a larger sample. Many of the questions we were interested in could not be adequately addressed with a sample size of 31 officers. Third, since this was the first attempt to validate the construct of tacit knowledge for military leadership, additional research should be conducted to confirm these results.

Subsequent studies might also include other relevant variables, such as measures of formal knowledge about military leadership (to test the relative contribution of formal versus tacit knowledge) and additional criterion variables. Finally, one could explore the 360-degree rating process further by examining the relationship between one’s score on the TKML and how one judges the leadership effectiveness of other officers.

Implications for Leadership Development

Our research has identified tacit knowledge that appears to make a difference in the leadership effectiveness of military officers. These findings suggest that efforts to support the acquisition of tacit knowledge would be valuable to leadership development. These efforts might include compiling the tacit knowledge we have elicited and using it to develop materials for case-based teaching or self-guided learning. We also gained a number of insights about the key developmental challenges at each organizational level which can be used to guide subordinates through their experiences to insure that they acquire the relevant tacit knowledge. The differences we observed by obtaining effectiveness ratings from multiple perspectives suggest that officers might need to consider that their actions are not necessarily viewed similarly by all their constituents. More in-depth examinations of the data might reveal how the different perspectives characterize leadership effectiveness. There were cases in which individual tacit knowledge questions exhibited the opposite relationship with the criterion suggesting that those who responded more like the experts were actually viewed as less effective. These questions could be explored further in case-based instruction to better understand the influence of one’s behaviors on officer’s perceptions at different levels. These findings also have implications for inventory development in that respondents may be asked to answer questions with certain perspectives in mind. Finally, the tacit knowledge methodology can be applied to understanding other aspects of military expertise such as tactical decision making. Tacit knowledge may be even more relevant to effectiveness in jobs which are characterized by greater uncertainty, complexity, and volatility.

As the Army faces a future operating environment characterized by increasing uncertainty and complexity, and as information continues to expand while the learning cycle contracts, it will become increasingly difficult to capture the lessons of experience in codified doctrine. Formalized instruction will no longer be an efficient nor effective way of sharing knowledge. The challenge is to help officers learn more rapidly and effectively from their experiences. Under these conditions, knowledge that we have characterized as tacit will likely become increasingly important to effective performance in all aspects of military service.

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Appendix

A

Unit Code: _____

Tacit Knowledge for Military Leadership Project

PLATOON LEADER QUESTIONNAIRE

INSTRUCTIONS AND OVERVIEW OF TASK

The Tacit Knowledge for Military Leadership Project seeks to identify the practical, action-oriented knowledge that Army leaders acquire on the job. By uncovering these lessons of experience, we hope to be able to teach officers these lessons and enhance leadership development. To help us identify how military leaders solve problems on the job, the members of the research team developed this survey.

This survey consists of descriptions of typical situations encountered by military leaders. After each situation, there are several options for how to handle the situation. For each option listed, your task is to rate the quality of the option on the following 1-to-9 scale:

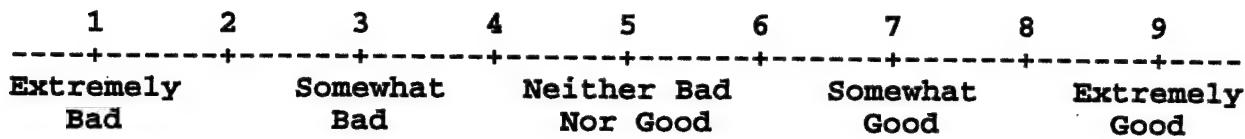
1	2	3	4	5	6	7	8	9
Extremely Bad	Somewhat Bad	Neither Bad Nor Good		Somewhat Good		Extremely Good		

Select the number corresponding to your answer, and write it in the blank preceding the option. Remember that some or all of the options listed for a particular question may be good, some or all of the options may be bad, or some or all of the options may be neutral (neither bad nor good). There is no one "right answer," and in fact there may be no "right answers." The options are simply things an officer at this level might do in the situation described. Please rate each individual option for its quality in achieving the goal or solving the problem described in the question. Do not try to "spread out your ratings" just for the sake of doing so--if you think all of the options are good, bad, or whatever, rate them accordingly. DO NOT BE CONCERNED if the numbers are all 9s, all 5s, all 1s, one 9 and the rest 1s, or any other mix. Your answers should reflect your opinions about the quality of the options.

Research on leadership would not be possible without your generous assistance. Thank you for your help!

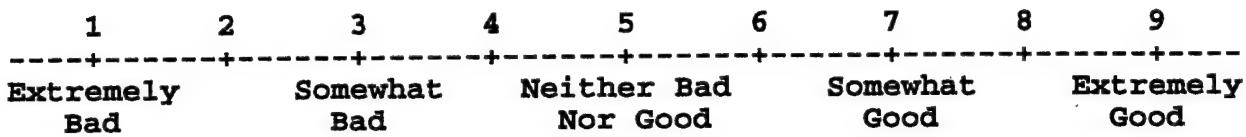
Privacy Act of 1974:

- a. Principal Purpose--The data collected from this survey will be used for research only.
- b. This Survey is Confidential--Only persons involved in collecting or preparing information for analysis will have access to completed surveys. Reports generated from results of this survey will be based on responses from groups of participants. Individuals or units will not be identified in any report.
- c. Participation is Voluntary but Needed--Your participation in this survey is important for the success of this project and will contribute to furthering the Army's understanding of leadership.



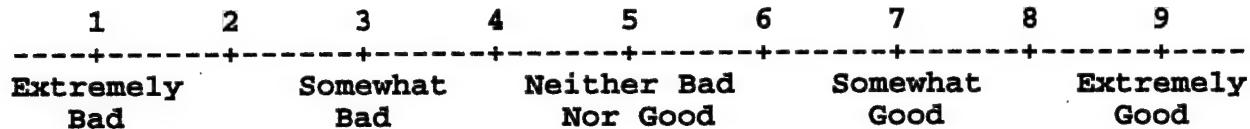
P1. You are a chemical platoon leader and your unit is on an extended, remote deployment. Your overall mission is to conduct Personnel Decontamination. However, you have instead been asked to provide showers to soldiers stationed in the region. Thus, your soldiers are not doing what they are trained to do. You are worried that your soldiers will become bored on this long mission. What should you do?

- _____ Demand that soldiers regularly meet an even higher-than-usual fitness test standard.
- _____ Take advantage of opportunities for training offered by other units if this training would be helpful to your soldiers.
- _____ Cross-train your personnel on Military Occupational Specialty (MOS)-related skills.
- _____ Challenge and encourage your soldiers to stay physically fit.
- _____ Ask soldiers for their suggestions about activities that might relieve the monotony of the deployment, and implement these ideas as appropriate.
- _____ Speak to your commander about your worries and ask for his or her advice.
- _____ Conduct physical fitness training on a daily basis.
- _____ Train your personnel on skills from other branches.
- _____ Explain to your soldiers why they are being utilized in this manner (providing showers).



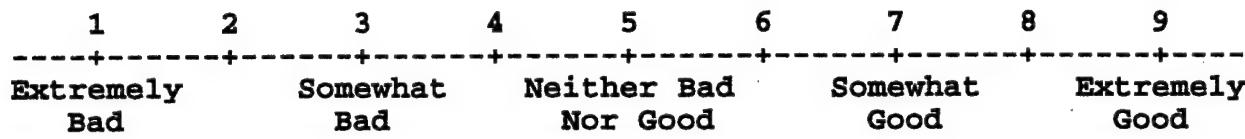
P2. You are a new platoon leader. The battalion you support is preparing to conduct a night move. You assemble your platoon and tell everyone to start packing equipment in preparation for the move that same night. When you come back to inspect their movement preparation, you find that your soldiers have not packed the equipment and are talking to personnel from other platoons, who are hanging around the area. What should you do?

- Order the soldiers from other platoons to leave the area.
- Take charge of the situation, get your unit moving, then talk to the NCOs to bring the chain of command online.
- Tell the soldiers exactly what you want done and when you will return to reinspect.
- Assemble your entire platoon and tell them that their work priorities are not on target.
- Remind soldiers of the time urgency and the need to get many things done quickly in preparation for the night move.
- Use verbal leadership and commands to influence your soldiers.
- Wait and see if the soldiers do the task later on their own.
- Assemble your squad leaders and talk about the situation.
- Speak to the soldiers in a friendly manner without emphasizing your authority as their leader.
- Warn the platoon sergeant that you will consider using punishment (such as an Article 15) if the platoon does not pull things together immediately.



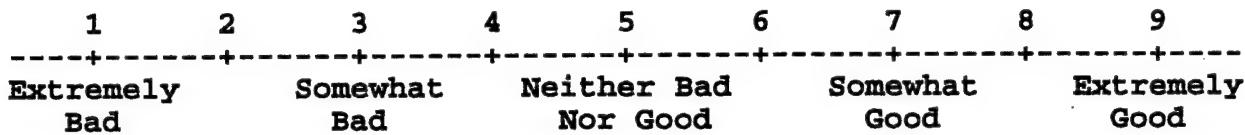
P3. You are a platoon leader, and your unit is training at the National Training Center. Your battery commander makes your howitzer sections dig individual positions every time you stop, even in the offense. The other batteries do not dig in as much as you do. The Observer Controllers (OCs) tell you that your sections dig good positions, but they question why you do this so much in the offense. The battery commander's order is making a big problem for you because your sections are under-strength, and digging in so much burns everyone out and has a bad effect on morale. What should you do?

- _____ Explain your view to the battery commander by talking in terms of Mission-Enemy-Terrain-Troops-and-Time (METT-T) and the effect of the decision on the unit's mission.
- _____ Tell the battery commander that his directive adversely impacts the unit's morale.
- _____ Go to the battery commander alone and ask him why he issued the directive.
- _____ Try to figure out on your own why the battery commander issued the directive and explain it to your soldiers.
- _____ Speak to the company first sergeant for advice and assistance.
- _____ Enlist the support of one or two other platoon leaders and go together to speak to the battery commander.
- _____ Based on the position of your troops, make a decision not to comply with the commander's directive on the basis of "mission first," then explain your actions after the fact.
- _____ Get together with the other platoon leaders and agree on a common position, get the support of senior NCOs, and then go as a group and together state your case to the battery commander.



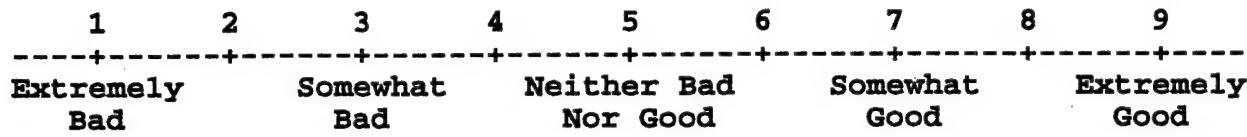
P4. You have spent two months working with your new battery commander. In his last position as the Fire Support Officer for an infantry battalion he supervised a shorthanded team. Consequently, he was required to perform many duties himself. Your commander still tries to stay involved in all of the day-to-day details of running the unit, and he generally delegates tasks less often than you would like. You believe that your commander is overburdened, and you are worried about the consequences of his time-management techniques. What should you do?

- If you know that the battery commander intends to give someone a task, speak to that person before the battery commander does, so that he or she has already started the task before the battery commander meets with him or her.
- Wait to take action on specific things until after he mentions them to you.
- Help your battery commander to better manage his time in any way you can.
- Don't wait to be told what to do--anticipate what needs to be done, and if you are capable, do it.
- If something needs to be done but you can't do it, find someone else who can and get him/her involved--without being asked by the battery commander.
- Offer to take care of specific tasks before he mentions them to you.
- When he returns from command and staff meetings, meet with him right away by yourself and write down everything that has to be done.
- Rely on the NCO chain of command; deal with the appropriate NCO and get NCO support.
- Go to the first sergeant and/or executive officer and ask for suggestions about what to do about the commander's management style.
- Ask the battery commander often what you can do to help and to relieve his task burden.
- Assume this is just the way he is and do your best to get along.



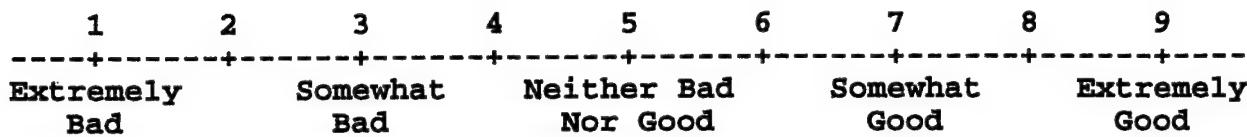
P5. During the live fire attack at the National Training Center, your tank platoon is in an overwatch position, as part of the observation post (OP) plan. You are supposed to wait to be called forward into the attack. From your position, you watch the artillery come in on the enemy positions. The smoke from the artillery obscures the enemy's view. At this point, you should move out--you should call your commanding officer and tell him you are moving while the enemy is blinded. Instead, you wait to be told to move out, as the OP plan called for. Consequently, you move after the smoke lifts, and you lose three tanks, including your own. You are angry with yourself and ashamed; you believe you should have known better. How should you deal with this situation?

- Think about this negative performance feedback from the NTC as a way to identify and repair your weaknesses.
- Try to understand other people's roles in the decision, if any.
- During the After Action Review, admit to your soldiers that you made a mistake; take responsibility for what happened.
- Reflect on the decision and determine what you should have done, in order to derive the lessons learned.
- Remind yourself that you will do better on the next mission.
- During the After Action Review, describe your mistake to your subordinate leaders in order to develop and train them.
- Put the decision behind you; try not to dwell on it.
- During the After Action Review, try to explain the reasons for your decision to your soldiers.
- Don't let the soldiers get down on themselves because of your decision--build up their confidence and encourage them.
- Discuss the issue with your company commander and convince your company commander to allow you the freedom to exercise initiative at certain times, like this one.



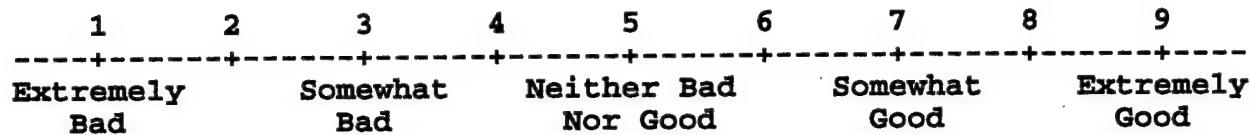
P6. You are a platoon leader, and one day your driver has a motivational problem while out in the field. He starts mouthing off to you while standing on top of the turret in front of the rest of the platoon. Everyone in the platoon is listening to what he's saying about you, and it is extremely negative and harsh. What should you do?

- In front of the platoon, order your driver to do an unpleasant task as punishment for his insubordination.
- Pull him aside and read him his rights: really chew his butt.
- Go to the PSG and tell him to take care of this problem.
- Order your driver to be quiet and get back to his job.
- Pull him aside and tell him to come speak to you in one hour.
- Answer your driver back immediately and defend yourself by arguing your position.
- Tell your driver you are recommending him for an Article 15.
- Do nothing; walk away and wait for your driver to blow off steam.
- Speak to your company commander about the problem and get his/her advice.
- Speak to another platoon leader and get his/her advice.
- Pull him aside, talk to him in private, and ask what's wrong.



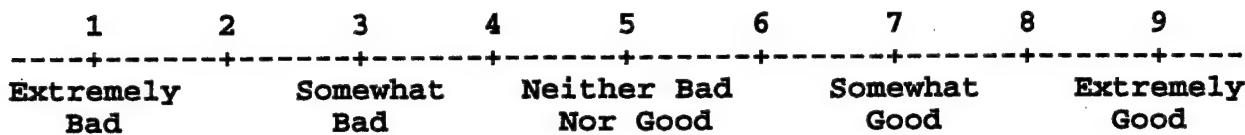
P7. Your battery commander makes a decision you do not agree with. You try speaking with him and stating your position as effectively as you can, but his mind is made up and he is not going to change his position. Other platoon leaders agree with you that the battery commander's decision is wrong. What should you do?

- _____ Use the first sergeant or executive officer as a voice-piece for your ideas: Convince one of them to state your opinions to the battery commander.
- _____ Speak to the battalion commander and ask for advice.
- _____ Tell only your NCOs that you support the battery commander's decision.
- _____ Tell your platoon that you support the battery commander's decision, and they must implement it.
- _____ Tell only your NCOs that you do not support the battery commander's decision, but ask for their help in implementing the decision anyway.
- _____ Tell the NCOs that you do not support the battery commander's decision, and ask for their opinions and advice on how to handle the situation with the troops.
- _____ Tell your platoon that you do not support the battery commander's decision, but ask for their cooperation in implementing the decision anyway .
- _____ Formulate the best possible argument that you can in support of the battery commander's decision, and then explain the decision to the platoon while asking for their support.
- _____ Go back to the battery commander and tell him/her that because you do not agree with the decision, it will be very hard for you to gain the support of the NCOs and troops to carry out the battery commander's wishes.
- _____ Wait an hour after the meeting, then approach the battery commander with an alternative solution.



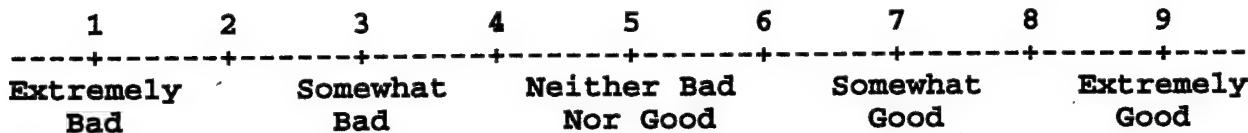
P8. You are a new platoon leader who takes charge of your platoon when they return from a lengthy combat deployment. All members of the platoon are war veterans, but you did not serve in the conflict. In addition, you failed to graduate from Ranger School. You are concerned about building credibility with your soldiers. What should you do?

- Do not change procedures that work.
- Ask the members of the platoon to share their combat experience: Ask what they learned and how it can help the platoon.
- Work hard to get into excellent physical shape so that you excel in PT .
- Maintain good military bearing by wearing a pressed uniform, shined boots, and having good posture.
- Speak to your soldiers with a tone of voice that conveys respect for them.
- Study field manuals and military history in order to gain technical and tactical competence.
- Defer to soldiers on matters related to their combat experience, thus acknowledging that they know more than you do in some areas.
- Tell your NCOs about all of the studying you have done to increase your competence.
- Listen frequently to your soldiers; hear their views, opinions, comments, and suggestions.
- Announce right up front that you are in charge and the soldiers must accept this fact and treat you with appropriate respect.



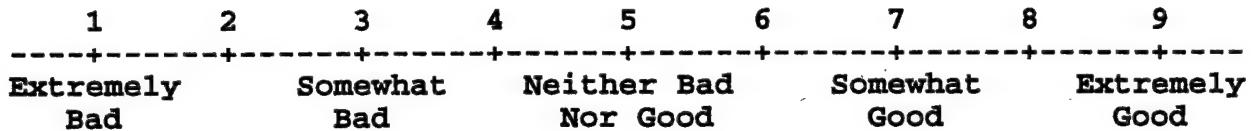
P9. You are a new platoon leader, and you are under a great deal of stress. Everyone is expecting a lot of you, and there never seem to be enough hours in the day to accomplish everything. There is a lot of competition for key awards and positions in the future, and other officers are working as hard as you are. At home, your family also needs your time and attention. How should you manage your stress?

- Find a trustworthy military person or confidant (not your rater) to talk to about your frustrations and problems--someone who will provide you with positive feedback about your performance.
- Ask a senior military leader whom you respect for specific advice and suggestions.
- Find a trustworthy military person or confidant (not your rater) to talk to about your frustrations and problems--someone who will provide you with honest feedback about your performance.
- Try not to take problems home from work.
- If tempted to take work home, ask yourself whether it is really critical, or whether it can wait until tomorrow.
- Find a trustworthy military person to talk to who will give you positive reinforcement.
- Put your problems in perspective by reflecting on people who are worse off than you are.
- Remind yourself of your long-term goals--five or more years out--and look for relationships between the current situations and your long-term goals.
- Take up a hobby of interest to you and do it even though you are tired.
- Remember to place your career in perspective by focusing on the many aspects of your life that matter in addition to your unit.
- Speak to your commander about your stress, frustrations, and problems, and request her/his advice.



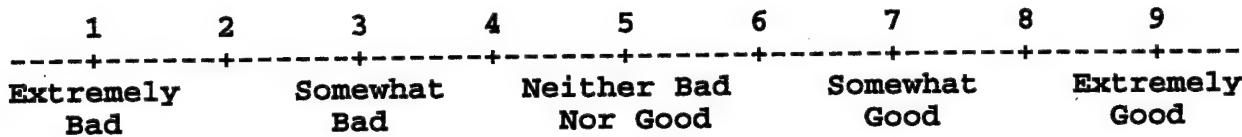
P10. You are an engineer platoon leader training with your soldiers. One squad is given the mission to put in a minefield for the Infantry battalion. You pick the second squad because they are good soldiers, have better equipment, and are better trained to do the job. But the squad is exhausted and the soldiers really complain. They note that it is nearing the end of the exercise and they are very tired. You tell them what you want done and you make the standards clear. When you return to check, the minefield is not up to standard and the squad is sitting around eating. You talk to the squad leader, and point out that the minefield is not up to standard. He tells you in front of the squad that the squad is not interested in your standards and that what they have done is the best you are going to get. What should you do?

- Relieve the squad leader, put a team leader in charge, and provide him with your guidance to complete the task.
- Recognize that the soldiers have reached their limit and tell them you recognize this and will take steps to ensure they are not pushed too far in the future.
- Try to convince the squad leader and soldiers that you will not give them another mission until they have had a chance to rest, but that they must bring the minefield up to standard.
- Assume that the soldiers are overworked and let them off the hook this time--do not make them complete the task.
- Punish the squad leader by recommending him for an Article 15 for mouthing off to you about the soldiers not caring about your standards.
- Order the soldiers to stop eating immediately and complete the task, and threaten punishment if they do not comply.
- Say that you recognize they are tired, but tell the soldiers that the task must be completed, and ask what assistance you can arrange for to help them get the task done.



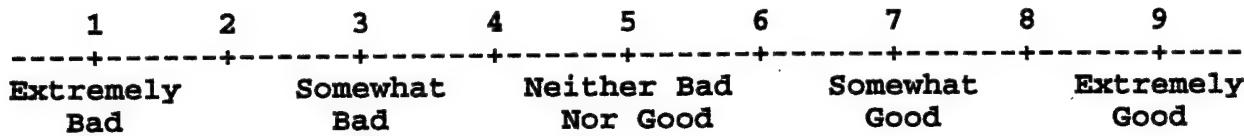
P11. You are a platoon leader, and your battalion requires the company to turn in training schedules six weeks in advance. But the battalion does not give you six weeks notice on requirements. Thus, there are a lot of changes to the training schedule. The battalion tells you six weeks out is too far in the future to assign projects, yet they expect you to plan training six weeks out! The soldiers think that these changes in the schedule jerk them around and sometimes cause morale problems. What should you do?

- _____ Tell your soldiers to stop griping and worrying about the changes in the schedule--remind them that they always prepare their classes the night before anyway.
- _____ Let the soldiers know the changes to the schedule are not your fault, and that you appreciate their need to be able to plan.
- _____ Buffer the platoon from changes that take place higher up by filtering the information you give them about these changes--provide soldiers with as much stability and predictability as possible.
- _____ Submit all required paperwork to change the schedule to the battalion, but for your own platoon, publish a special calendar that is more short term but is always accurate.
- _____ Tell your platoon to ignore the training schedule, since it changes so much.
- _____ Speak to your company commander about the disruptions caused by the changes in the schedule, and solicit his advice and assistance.
- _____ Let the soldiers know that you agree with them that sometimes it seems that the battalion and company don't know what they are doing.
- _____ Don't publish your own short-term schedule because then soldiers will think with too short-term a focus and won't take the necessary time to prepare for classes, etc.



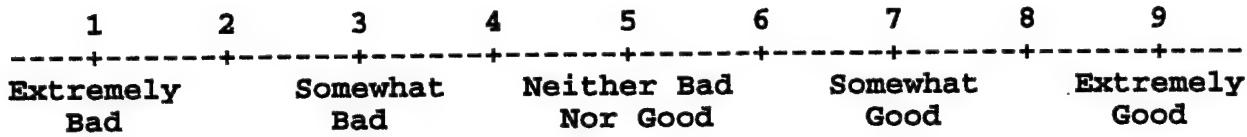
P12. Your platoon has been working on building a range for 17 months. The assignment has been unpleasant. One reason for this is that the range site is more than an hour's drive away from the Army post. Suddenly, you are told that your platoon has to finish the project in the next three weeks. This will mean that you will have to stay out at the range and work nights, all in the summer heat of Georgia. What should you do to keep your soldiers motivated?

- _____ Tell the soldiers what to expect so they can plan ahead, even when you know the work will be unpleasant.
- _____ Expose yourself to many of the same hardships as your soldiers by spending time with them in the hot sun, staying with them even when it is unpleasant, etc.
- _____ Focus your efforts on providing for their basic needs--get them hot meals, weekends off, and ice in the field, for example.
- _____ Do everything you can to get public recognition for your soldiers when the task is complete and they are back at the base--make sure everyone knows how hard they worked.
- _____ Speak to your company commander and try to arrange for a more pleasant assignment to follow this unpleasant one, and then let your soldiers know what is to come to give them something to look forward to.
- _____ Reward the soldiers for good work; let them know they are appreciated.
- _____ Find out why the project is important, and then communicate these points to your soldiers to show them why their effort is meaningful.
- _____ Give the soldiers a reward to look forward to, such as extra time off when the project is complete.
- _____ Empathize with the soldiers' situation and allow them to take steps to make themselves more comfortable, such as modifying their uniform.



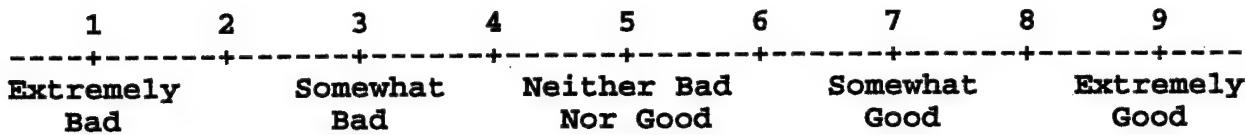
P13. You are a platoon leader, and you receive a new private. On his second day in your platoon, he says that he wants to kill himself. You refer the soldier to the Medical Health Center and the Chaplain. Soon after, you learn that the medical center has not assigned a person with relevant professional training to help the soldier. The Chaplain is not having much effect because the soldier is not religious. In general, you have doubts about the qualifications of the people assigned to help him. You are very concerned about this situation. What should you do?

- _____ On your own, confer with the mental health officials and ask their opinion.
- _____ Every time you speak with the soldier, make sure a witness is present to protect yourself from later misinterpretations or allegations about what was said.
- _____ Once the situation de-escalates, take the soldier on an extended training exercise where he can meet and establish friendships with fellow soldiers.
- _____ Ask the members of the platoon to help the new soldier by not making fun of him and by working together to keep an eye on him--let them know that they can make a big difference if they help out.
- _____ Speak with your commanding officers, inform them of the situation, and ask their opinion.
- _____ Call the soldier's parents and ask for their advice and assistance.
- _____ Put your concerns and a list of the actions you have taken in writing to your commanding officer in order to protect yourself.
- _____ Take immediate action yourself by sitting down and talking with the soldier and giving him 24 hours to decide if he wants to stay in the Army.
- _____ Tell the private that he has to pull his weight and do his job.



P14. You are a new second lieutenant. Due to numerous inactivations you have been assigned to the battalion staff until a platoon becomes available. You are somewhat intimidated about working with people who outrank you by such an extent--your direct boss is the battalion executive officer. However, as an officer, you know you have a job to do. Rate the quality of the following strategies for establishing yourself as an effective officer in your new position:

- Do not try to act like you know it all.
- Be assertive; do not be afraid of using your rank.
- Do not worry about upsetting people, even higher ranking officers, when you are doing your duty.
- Be careful not to use words or say things that might offend people who outrank you.
- Check with other lieutenants or captains and hear their opinions and get their input on an issue before taking the issue to the boss.
- Be respectful when you speak to officers who outrank you.
- Approach competent officers directly, and ask frequently for their advice and help.
- Find out who the competent officers are by reputation, then seek out these individuals and use them as mentors and sources of advice.
- Concentrate on the facts you are trying to communicate when you speak to high-ranking officers--present the facts accurately and do not change what you are saying to avoid upsetting higher-ranking officer.

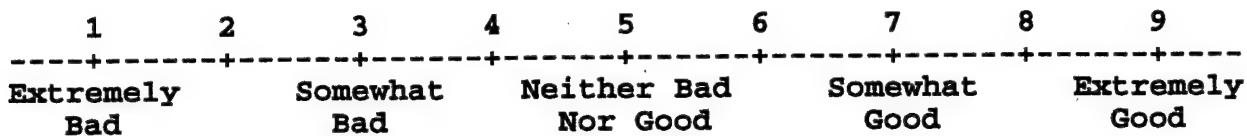


P15. You and your company commander don't talk about your performance very often. When you do, he usually blows up and chews you out, but never explains what you did wrong. In fact, you rarely know exactly what your company commander thinks of you or what he expects. He generally just tells you what he wants, and that's it: He never communicates with you concerning your overall performance or development. What should you do in a situation with this type of company commander?

- Have a friendly competition with the other platoon leaders in order to set goals and judge your progress.
- Speak to another company commander about your problem and ask for his advice.
- Avoid talking to other officers about your complaints about your company commander--figure things out for yourself as best you can.
- Try to learn by talking with others about the boss's likes and dislikes, in order to understand his style and expectations.
- Use your fellow lieutenants as a feedback group to determine how your performance compares with that of your peers.
- Ask the first sergeant if your subordinates are having problems with the company commander, so that you can counsel them.
- Accept the fact that this is just the way your company commander is, and drive on.
- Ask the XO or senior lieutenant questions about the boss's opinion of you as a way of getting more information.
- Recognize that cooperation among the lieutenants in a company is key to the success of a platoon leader, and make sure that you cooperate with the other platoon leaders.
- Use your fellow lieutenants as a social support group to determine if your experiences with the company commander are normal.
- Assume that when your boss is not chewing you out, it basically means that he is satisfied.
- Use your fellow lieutenants as a social support structure to vent your feelings and reduce your stress.

P15, Continued

- Approach your company commander, explain that your goal is to do and be your best, and tactfully ask him for detailed performance feedback and developmental counseling.
- Speak to platoon leaders in other companies about your performance and frustrations.
- Ask the first sergeant what the company commander says about you behind your back.



P16. You are a medical service platoon leader, and you have been in the unit for several months. You have frequently seen your peers yelling at soldiers when the soldiers make a mistake. You do the same thing when one of your squads does not follow the platoon's standardized load plan--and you really lose control. You believe you were out of line, and you did not achieve the desired results. You also believe that yelling at people is demeaning and wrong. What should you do now?

- _____ Recognize that it is not appropriate to scream at people, and that there are other, more effective ways to handle situations.
- _____ Think about how your superior officers' anger has or would affect you--try to put yourself in the shoes of the sergeant and the other soldiers.
- _____ Apologize with sincerity to the squad.
- _____ Write a note to yourself on your camouflage notebook that says "Control My Temper," in order to remind you to stay in control.
- _____ Ask yourself how other effective leaders at your level would have handled the situation, and make plans to modify your behavior accordingly in the future.
- _____ Speak to the chaplain or a counselor about how you might better control your temper.
- _____ Next time you are about to lose your temper, practice a technique like counting to ten several times to delay and hopefully stifle your outburst.
- _____ Sit down with your soldiers and explain why you felt so strongly about the ambulances' standardization; try to make them see why you felt this was worth yelling about.
- _____ Take deliberate action to reward soldier initiatives in the future to encourage them to be more forward.
- _____ Ask your company commander for ideas about how you should have handled the situation.
- _____ Accept that even though you may not like to do it, being in the Army sometimes means yelling at others.

P16, Continued

Ask other platoon leaders whom you admire for their advice about handling similar situations in the future.

Appendix

B

Unit Code: _____

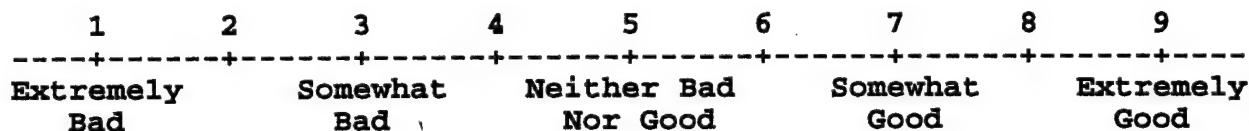
Tacit Knowledge for Military Leadership Project

COMPANY COMMANDER QUESTIONNAIRE

INSTRUCTIONS AND OVERVIEW OF TASK

The Tacit Knowledge for Military Leadership Project seeks to identify the practical, action-oriented knowledge that Army leaders acquire on the job. By uncovering these lessons of experience, we hope to be able to teach officers these lessons and enhance leadership development. To help us identify how military leaders solve problems on the job, the members of the research team developed this survey.

This survey consists of descriptions of typical situations encountered by military leaders. After each situation, there are several options for how to handle the situation. For each option listed, your task is to rate the quality of the option on the following 1-to-9 scale:

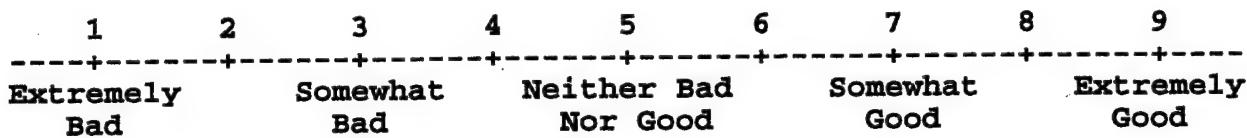


Select the number corresponding to your answer, and write it in the blank preceding the option. Remember that some or all of the options listed for a particular question may be good, some or all of the options may be bad, or some or all of the options may be neutral (neither bad nor good). There is no one "right answer," and in fact there may be no "right answers." The options are simply things an officer at this level might do in the situation described. Please rate each individual option for its quality in achieving the goal or solving the problem described in the question. Do not try to "spread out your ratings" just for the sake of doing so--if you think all of the options are good, bad, or whatever, rate them accordingly. DO NOT BE CONCERNED if the numbers are all 9s, all 5s, all 1s, one 9 and the rest 1s, or any other mix. Your answers should reflect your opinions about the quality of the options.

Research on leadership would not be possible without your generous assistance. Thank you for your help!

Privacy Act of 1974:

- a. Principal Purpose--The data collected from this survey will be used for research only.
- b. This Survey is Confidential--Only persons involved in collecting or preparing information for analysis will have access to completed surveys. Reports generated from results of this survey will be based on responses from groups of participants. Individuals or units will not be identified in any report.
- c. Participation is Voluntary but Needed--Your participation in this survey is important for the success of this project and will contribute to furthering the Army's understanding of leadership.

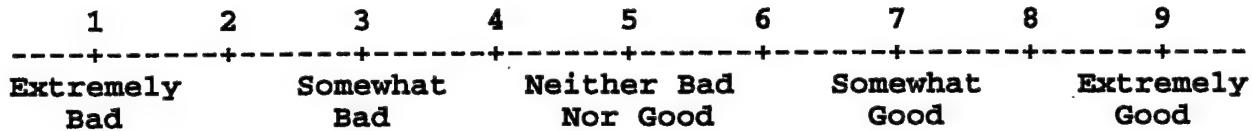


C1. You take over a newly-formed company as a company commander. At the same time, the company also receives a new first sergeant, two new platoon leaders, two platoon sergeants, and a supply sergeant. You quickly begin to perceive that the soldiers in the company have a bad attitude regarding training. A few weeks after taking command, you deploy the unit to the field for a 21-day Field Training Exercise (FTX). There, you again observe (on the second day of the FTX) that the soldiers' performance is poor. For example, their stand-to procedures don't meet your standards. What should you do?

- Call your key leaders together and communicate your training standards in terms of the company's METL.
- Sit down with your first sergeant, discuss the situation, and ask for his opinion.
- Talk to the informal leaders in the company (for example, specialists who have demonstrated knowledge gained by reading field and training manuals) privately to find out why the soldiers have a negative attitude about training.
- Call a company meeting and communicate clearly your training standards in terms of the company's mission-essential task list.
- Speak to your platoon leaders as a group, but away from the soldiers, tell them your standards and show them how to deal with the stand-to problem.
- Speak with each of your platoon leaders individually and privately and tell each one to deal with the problem.
- Give the platoon leaders several more days to conduct their own training so that you can more closely observe and interact with the soldiers.
- Personally inspect the stand-to procedures--inspect each fighting position and range card yourself.
- Call a company meeting, tell the platoon leaders to stand off to the side, ask the soldiers why their performance is poor, and listen to their reasons.
- Get the first sergeant and the platoon leaders together to discuss the situation with you.
- Threaten disciplinary action to the entire company if the stand-to procedures are not performed well during your next inspection.

C1, Continued

- _____ Conduct an After Action Review on stand-to and define your criteria for success.
- _____ Speak to the battalion commander and get his advice and direction regarding the best way to handle the problem.
- _____ Call a company meeting fully involving the platoon leaders, ask the soldiers why their performance is poor, and listen to their reasons.
- _____ Investigate where the soldiers got their prior ideas about what constituted acceptable standards.
- _____ Bring in the entire chain of command, all at once, for a group discussion about the situation.

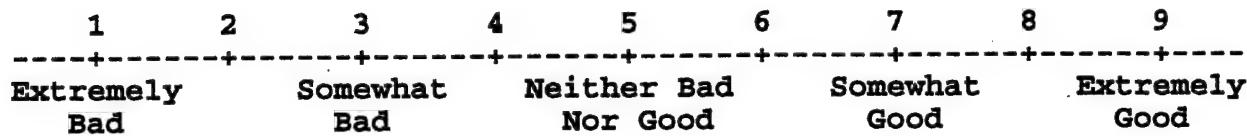


C2. You are a company commander on your final National Training Center (NTC) rotation as a company commander. Your company is cross-attached to a mechanized infantry battalion to form a task force. Before you deployed to the NTC, you were given a new platoon leader (and his platoon) who had been transferred from another company in order to get a second chance. You have reason to believe he is weak tactically. When the task force is organized into company teams, you are required to provide a platoon to an infantry company. You have been advised by your first sergeant to send this new platoon over to the infantry company. What should you do?

- Give the weak lieutenant specific step-by-step instructions regarding how to do his job.
- Talk to the first sergeant, ask him to explain the reasons for his opinion, and listen to these reasons closely before making a decision.
- Send your best tank platoon over to the infantry company.
- Keep both your strongest and weakest platoons and send an average-performing platoon over to the infantry company.
- Send the new platoon leader and his platoon over to the infantry company.
- Speak to the soldiers in the poorly-performing platoon: Tell them you have confidence in their ability to perform well, and that to display your level of confidence you are sending them over to the infantry company where they will represent your company.
- Send the platoon you would normally send.
- Send the weak platoon leader out with a strong company to observe and learn, without giving him any responsibility.
- Have a closed-door talk with the weak lieutenant: Tell him he has a free opportunity to learn here, and he should do his best to learn what he can and then call you with any problems.
- Speak to your battalion commander and tell him that you were given this new, ill-prepared platoon leader before you deployed to the NTC, and ask for his direction in making your decision.

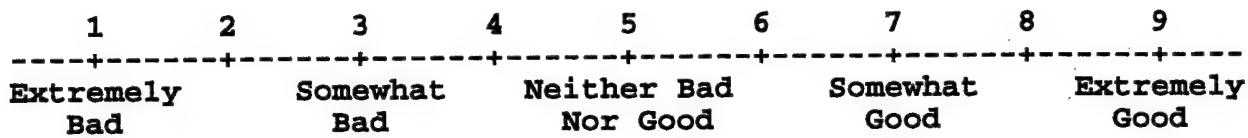
C2, Continued

- _____ Speak to the platoon leader; try to uncover the reasons for his weaknesses, and deal with these issues as best you can.
- _____ Tell your platoon sergeant to look out for the weak lieutenant.



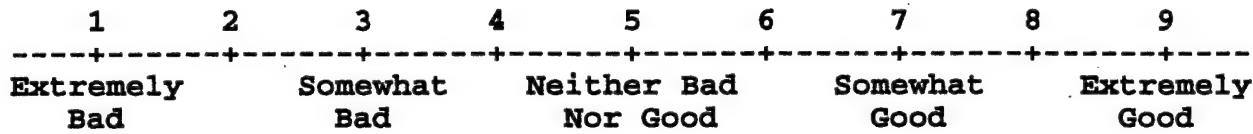
C3. You are a company commander, and your battalion commander is the type of person who seems always to "shoot the messenger"--he does not like to be surprised by bad news, and he tends to take his anger out on the person who brought him the bad news. You want to build a positive, professional relationship with your battalion commander. What should you do?

- Speak to your battalion commander about his behavior and share your perception of it.
- Attempt to keep the battalion commander "over-informed" by telling him what is occurring in your unit on a regular basis (e.g., daily or every other day).
- Speak to the sergeant major and see if she/he is willing to try to influence the battalion commander.
- Keep the battalion commander informed only on important issues, but don't bring up issues you don't have to discuss with him.
- When you bring a problem to your battalion commander, bring a solution at the same time.
- Disregard the battalion commander's behavior: Continue to bring him news as you normally would.
- Tell your battalion commander all of the good news you can, but try to shield him from hearing the bad news.
- Tell the battalion commander as little as possible; deal with problems on your own if at all possible.



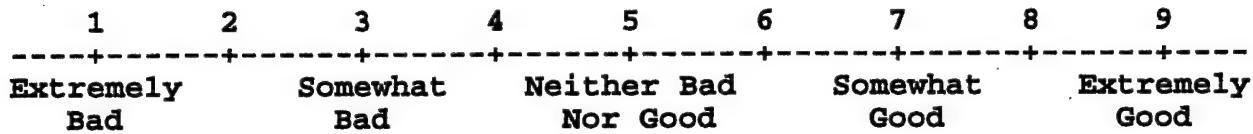
C4. You are a company commander. It is 1830 hours, you have had a full day, and you are ready to go home. However, your in-box is full. What should you do?

- Leave the in-box until tomorrow.
- Go through the items and act only on the time-sensitive and soldier-related items.
- Tell the first sergeant that he needs to help you prioritize your work by separating those items that need immediate attention from those that can wait.
- Go through the contents of the in-box now and act on all of the issues.



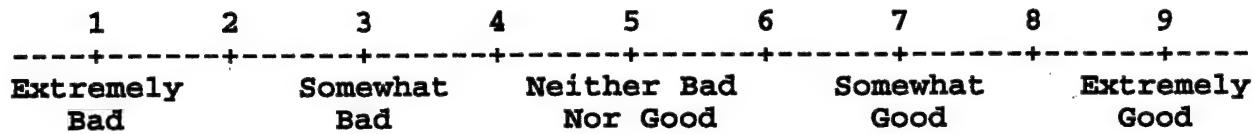
C5. You are a company commander on a battalion-level field training exercise. Your unit has just completed a night move and has been in position for about two hours. At midnight, you learn that a weapon is missing. The platoon sergeant with responsibility for weapons is confident that he knows where the weapon is because he saw it during the sensitive-items check completed after he arrived. A sensitive-item report is due to brigade at 0400 hours. What should you do?

- ____ If you are confident the weapon will be found at first light, submit a sensitive-item report stating that all weapons are accounted for.
- ____ Do not speak to the battalion commander until shortly before the sensitive-item report is due; at this point, completely and honestly report all of your actions since the weapon was discovered missing.
- ____ Immediately mobilize everyone in the unit, and conduct a 100% inventory followed by a hands-on search.
- ____ Before the sensitive-item report deadline, notify the battalion executive officer of the situation in person.
- ____ Consult the standing operating procedures manual to ensure that you follow the rules correctly.
- ____ Immediately notify the battalion commander and tell him your plans for finding the weapon and resolving the incident.
- ____ If the weapon is not located within one hour, notify the entire chain of command of the lost weapon.



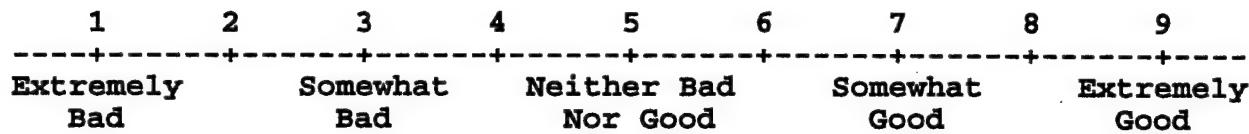
C6. You are a company commander. Your battalion is training for gunnery. Currently, all of the companies are well-prepared to pass gunnery. There is a great deal of competition among the companies and all of the commanders have Officer Evaluation Reports (OERs) due in the next few months. You have an NCO (platoon sergeant) in your unit who just arrived from teaching gunnery at the branch school. He tells you about some advanced training techniques using available equipment that have significantly improved gunnery scores in other units. This information has not been made available to units in the field. After some practice with the techniques, you find that they significantly improve the scores of your sections. What should you do?

- Do nothing--allow the information about the training techniques to be passed through NCO channels if it comes up.
- Share the information about the training techniques with the battalion commander, then tell all of the other company commanders.
- Train your company using the information, execute gunnery--presumably beating all of your fellow company commanders--then tell everyone how you did it after the fact.
- Initiate a meeting with all company commanders, platoon leaders, first sergeants, and platoon sergeants, and have your new platoon sergeant present and describe the techniques.
- Tell the platoon sergeant to keep close hold over the information about the training techniques so that only your company possesses this information.



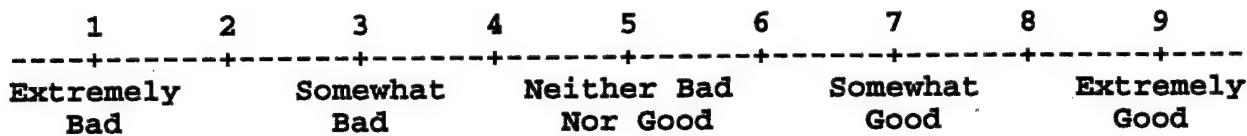
C7. You are a battery commander. Consequently, you work for both your battalion commander and the brigade commander whom you support. During preparation time for the National Training Center (NTC), you are also preparing for a Battle Command Training Program (BCTP). Your battalion commander is interested in the BCTP, but the maneuver brigade commander wants you to focus on the NTC. What should you do?

- Find out from the battalion commander what his priority is: Get your battalion commander's guidance and act accordingly.
- Focus on BCTP regardless.
- Place your priority on the training event that will most benefit your soldiers (NTC), regardless of the wishes of the battalion and brigade commanders.
- Focus equally on the two training events.
- If both training events have equal training value, then support the event scheduled by your battalion commander (BCTP).
- Focus on NTC regardless.
- Focus on your weakest area.
- If both training events have equal training value, then support the brigade commander's wishes (NTC).



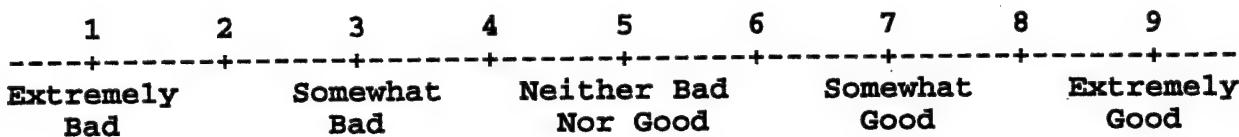
C8. You are a new company commander. There are a lot of things you want to fix in the company. You have quickly become overwhelmed by the many pressures you face and the many demands on your time. You realize that you cannot possibly do everything. What should you do to better manage your key leaders and your time so that you are able to accomplish more in the same amount of time? Rate the following strategies:

- Have your key leaders execute the alternative after you select it.
- Allow key leaders on their own to select alternatives to solve problems and implement these strategies.
- Use key leaders to solve problems by having them research alternatives in their area of responsibility that would solve the problems and report these alternatives to you.
- Try to report earlier in the morning and/or stay later at night to get more done.
- Give your key leaders more specific directions when it comes to solving problems--tell them what to do to get the job done.
- Learn to spot check by walking around the company area and getting a general idea of what's going on--don't feel compelled to check every single thing personally.



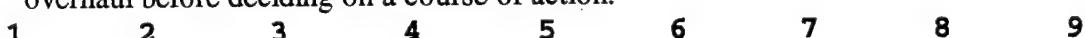
C9. You are a new company commander who has just taken over your unit. One of your soldiers is leaving the army. The supply sergeant brings you a Report of Survey and a \$250 Statement of Charges for the soldier's missing TA-50 and asks you to sign one or the other. You talk to the soldier and learn that the equipment was lost on re-deployment and that the chain of command had not taken appropriate action. The soldier had notified the old commander three times in writing, saying that his equipment was missing--but the commander took no action because he did not want to submit a late Report of Survey. (The Battalion Commander also did not want any late reports of survey.) The soldier says he will sign the Statement of Charges because he just wants to get out. What should you do?

- ____ In spite of his dislike for late reports, notify the battalion commander that you are initiating a late report of survey on the soldier's lost TA-50.
- ____ Have the supply sergeant validate the statements made by collecting relevant information from the soldier and other sources, put this information together, and bring it to the battalion commander.
- ____ Initiate a late report of survey without first informing the battalion commander.
- ____ Point out to the battalion commander that the chain of command failed to properly uphold its responsibility and failed the soldier, and explain that this situation must be rectified now.
- ____ Allow the soldier to sign the Statement of Charges so that he can leave.
- ____ If the battalion commander is hard on company commanders who initiate late Reports of Survey, do not initiate the report.
- ____ Attempt to contact the past company commander to find out why, exactly, he did not take care of the situation.



C10. It is the first week of your command as a new company commander, and you want to establish yourself quickly as an effective leader. You have assessed the current physical training program, and you believe it could use a total overhaul in order to ensure that the company will meet the PT standards. Your company does not have a qualified master fitness trainer. What should you do?

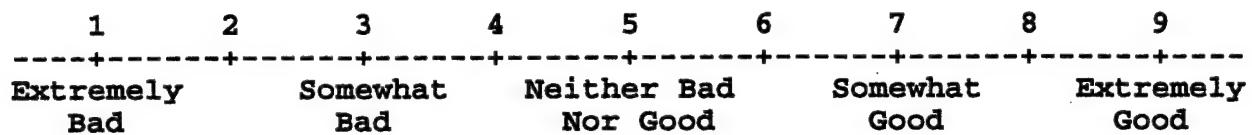
- Ask for a volunteer from the entire company to take charge and run the PT program, and supervise this individual very closely.
- Talk to your first sergeant and get his/her advice.
- Ask for a volunteer from among your platoon sergeants and platoon leaders to take charge and run the PT program, and supervise this individual very closely.
- Offer a reward or incentive to any soldier who comes up with the best idea for how to revamp the PT program.
- Publicly praise and reward soldiers who demonstrate initiative in revamping the PT program.
- Consult a fellow commander who has a solid fitness program for guidance and suggestions.
- Ask for a volunteer from among your platoon sergeants and platoon leaders to take charge and run the PT program, and give this person the authority to do it his/her way.
- Assess the company's other goals and decide which of the goals is most important before taking action on the PT program overhaul.
- Appoint the most competent person to work with you in revamping the PT program.
- Ask the soldiers and key leaders for their ideas and suggestions before deciding on a course of action.
- Ask for a volunteer from the entire company to take charge and run the PT program, and give this person the authority to do it his/her way.
- Speak with your battalion commander to get his/her suggestions regarding the PT overhaul before deciding on a course of action.



Extremely Bad	Somewhat Bad	Neither Bad Nor Good	Somewhat Good	Extremely Good
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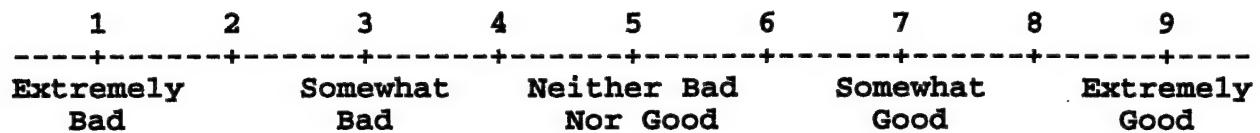
C11. You are a new company commander. The previous commander was a micromanager. This individual was extremely detail-oriented, gave very little positive feedback and often tore down the platoon leaders when even the slightest infraction occurred. For example, the old company commander noted one day that one of the platoon leaders was wearing a dirty soft-cap, and he called the entire platoon a disgrace. This behavior on the part of the outgoing company commander was very hard on the platoon leaders. Several developed nervous conditions such as ulcers and sleep problems. Your goal is to create a more positive leadership atmosphere in the unit. What should you do?

- Give all unit members more responsibility than they had before, and hold them accountable.
- When you must give negative feedback to your platoon leaders, do so constructively, pointing out specific areas that need improvement and explaining how this improvement can be achieved.
- Allow the platoon leaders and their soldiers the benefit of the doubt--don't jump to negative conclusions.
- Assign work goals with clear milestones to all officers.
- Involve senior NCOs in the decision-making process.
- Give the platoon leaders frequent, specific positive feedback.
- Continue with the micromanagement style since it is common practice in the company, and relieve and/or replace the lieutenants who cannot handle the stress.
- Let your subordinates know your intent and then let them develop their own plans.
- Recognize soldiers' achievements with awards.
- Have positive expectations: State often that you believe that every member of the unit has the ability to perform well if he or she applies himself or herself and works hard.



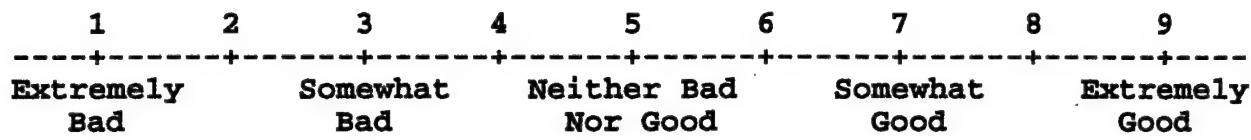
C12. You are a company commander with a new brigade commander. Before the new brigade commander took over, the battalion conducted After Action Reviews by critiquing each training task according to the Mission Training Plan. The new brigade commander asks to see how AARs are conducted in the brigade--he wants to find someone who does AARs improperly so he can use this individual as an example to show what needs to be improved. When the brigade commander observes you he says he does not like your AAR format and he feels you are critiquing instead of letting the soldiers talk. Thus, you must now develop a system for listening more to your soldiers while still maintaining an effective command. Rate the quality of the following strategies.

- Ask yourself why you talk when you do and evaluate whether you need to speak at these times to optimally benefit your unit.
- Listen most to soldiers who have the best interest of the unit at heart and have no hidden agendas.
- Ask around among the soldiers to discover the informal leaders in the group, then seek out and listen to these soldiers.
- Try listening at moments when you would customarily talk.
- When soldiers' safety is at risk, use directive leadership instead of listening.
- Whenever you have time, seek out your soldiers, ask them questions, and listen to their opinions and views.
- Do not listen to soldiers when they lack the knowledge necessary to make a decision.
- Schedule regular meetings with your NCOs when you just sit and talk about the unit--and make these meetings times when you do less talking and more listening.
- Listen most to soldiers who are squared away and who command the respect of other soldiers.
- Listen to soldiers who are willing to express their opinions before a group.



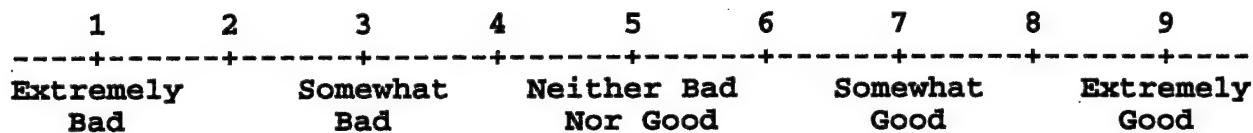
C13. You are a company commander, and there has been an ongoing problem in your unit with alcoholism and especially with soldiers driving under the influence of alcohol. Two soldiers in the unit who previously had bad problems have since joined Alcoholics Anonymous groups and are now recovered. One other soldier is now in jail because of a car accident he caused while intoxicated which resulted in the death of a civilian. You are extremely concerned about this ongoing problem, and you would like to do something to get through to the soldiers about its seriousness and impact upon your unit. What should you do?

- Regularly pull a soldier out of formation, at random, and ask him/her to speak to the unit about why driving under the influence is a bad idea.
- Encourage soldiers to form their own informal peer support group to combat alcoholism.
- Provide incentives to soldiers for going three consecutive weeks without drinking and for other milestones of good behavior.
- Present in detail the story of the soldier who is now in jail to the whole unit.
- Have the reformed alcoholics give presentations stating how they beat their problem to drum up peer support.
- Use different approaches from day to day when you talk to the troops about the problem--for example, one day mention the soldier who is in jail; the next day mention the success of the Alcoholics Anonymous groups.
- Prepare an analysis of what driving under the influence costs a soldier in lost pay and fines, and make this information readily available to all soldiers.
- Conduct frequent health and welfare inspections to search for alcohol.
- Call in Alcoholics Anonymous sponsors to give a talk about the dangers of alcoholism.
- Be tough on the soldiers: Threaten the most extreme punishment possible for even the slightest infraction of the rules.



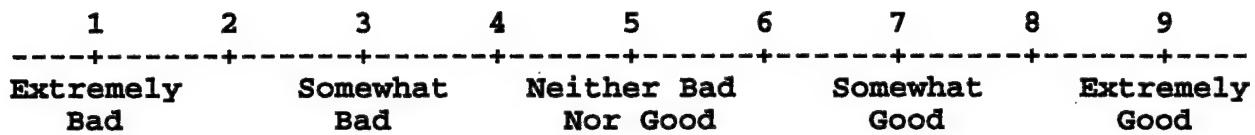
C14. You are a company commander with some relatively junior lieutenants. Your goal is to develop these lieutenants. Rate the quality of the following strategies for achieving your goal.

- Involve the lieutenants in every administrative action in the company.
- Beginning early on, encourage the lieutenants to determine their own goals, and use this information during counseling sessions.
- Involve the lieutenants only in those decisions that affect their platoons.
- Explain the big picture to the lieutenants regarding upcoming missions.
- When going on a mission, explain only their portion to the lieutenants.
- Tell the lieutenants when things in the battalion are bothering you.
- Involve the lieutenants in administrative activities only with soldiers from their own platoon.
- Don't share ideas with the lieutenants; make your own decisions and implement them.
- Have the lieutenants present for administrative punishments (Article 15s, etc.) only if their schedules allow it.
- Start a professional development program to assist the lieutenants in their growth.
- Involve the lieutenants in all decisions.



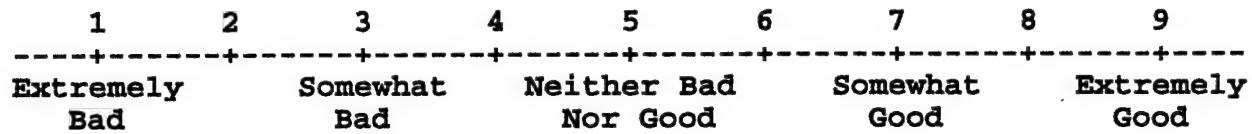
C15. You are a company commander. You have a platoon leader who is causing you problems. Once he was cleaning his weapon on the mail loading dock and he pointed it at a civilian. Another time he was late to a range. He frequently argues with you and does not do what you ask him to do. This is a new problem for your first sergeant--he has never experienced this situation before. The behaviors are continuing and growing in severity to a point where the lieutenant is insubordinate. What should you do?

- _____ If a relatively severe instance of insubordinate behavior occurs in public, shift the focus and avoid humiliating the platoon leader in public, but have him see you one-on-one later on.
- _____ Use all assets available to you--but do not involve your boss (the battalion commander).
- _____ Deal with the situation immediately--do not let it fester.
- _____ Counsel the platoon leader only when his/her performance warrants it.
- _____ Ask the battalion commander to give him a letter of reprimand.
- _____ If a severe instance of insubordinate behavior occurs in public, dismiss the platoon leader from the room and deal with him later.
- _____ Before taking action, find out if the platoon leader has been counseled before for his bad behavior.
- _____ Talk with the platoon leader and work out the problem.
- _____ Establish regular sessions during which you counsel the platoon leader about his performance.
- _____ To prepare for counseling sessions, get together with your first sergeant and role play various scenarios for dealing with the platoon leader including his potential reactions to your actions.
- _____ Wait awhile to see if the situation improves on its own.
- _____ If an instance of insubordinate behavior occurs between the two of you in private, immediately reprimand the platoon leader.



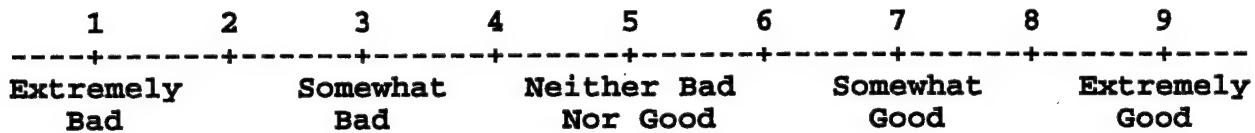
C16. You are a company commander, and your battalion commander often gives directives that you believe are unreasonable. You have tried to give your commander input regarding these directives, but he has not listened to your input. The NCOs and soldiers also feel these orders are unreasonable, and the situation is causing you considerable stress. You have generally lost respect for the battalion commander. He gives you another order you believe is unreasonable. What should you do?

- Speak to the sergeant major and see if she/he will use her/his influence with the battalion commander to improve the situation.
- Let your key subordinates know this is not your directive but rather the commander's.
- Do your best to gain the NCOs' and soldiers' compliance by explaining the rationale for the commander's orders, being as convincing as you can be.
- Go alone to the battalion commander and tell him/her you believe the order is unreasonable.
- Keep trying to give your battalion commander input regarding his unreasonable directives.
- Represent the orders as your own to your key subordinates.
- Say that the system is to blame for the unreasonable order.
- Let your soldiers know that this is not your directive but rather the commander's.
- Assign the unreasonable order a lower priority and accomplish it in the manner you choose.
- Get your key leaders together and go as a group to the battalion commander and say that the order is unreasonable.



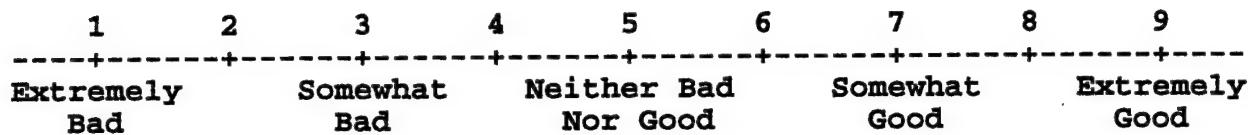
C17. You are a company commander with both military and civilian personnel in your unit. You have no E5 sergeants--instead, you have civilians doing supervisory jobs with soldiers working under them. You are experiencing problems in maintaining group cohesion: For example, civilians see soldiers taking off for training and wonder why they have to keep working; soldiers see civilians getting cash awards for good performance and wonder why they can't have similar awards; and so on. You must deal with these problems to keep your unit running smoothly. What should you do?

- _____ Try to develop cohesion separately in the civilians and military members by having separate social functions.
- _____ Educate the soldiers and the civilians about the differing requirements of their jobs: Tell your soldiers that they have contractual obligations and they must accept their situation; tell the civilians that their situation is different from the soldiers' situation.
- _____ Have both civilian and military members of the unit draw up a poster of your organization (an organization chart) and post it where everyone can see it.
- _____ Form a morale committee composed of both civilian and military personnel to plan company social functions.
- _____ Create a sign-out roster, and have people sign out when they leave their place of duty, stating where exactly they are going and why.
- _____ Study your own procedures to ensure that you are being fair and equitable to both the civilian and the military personnel.
- _____ Schedule outings, pot luck dinners, parties, and dining outs that include all members of the unit and their families.



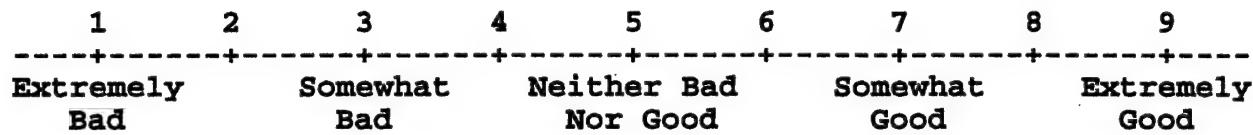
C18. You are a company commander, and your unit is dispersed and is assigned to various garrison commands. Thus, you cannot possibly exercise direct control over your troops. The garrison commanders have non-judicial authority over your soldiers. You want to develop a good relationship with the garrison commanders. What should you do to take care of your soldiers under these conditions?

- Talk to the garrison commanders whenever there is a problem with one of your subordinate leaders.
- Visit the local garrison commanders on a regular basis.
- Request extra resources (and do what you can to expedite the request) to help the garrison commanders provide for your soldiers, if necessary.
- Have your boss contact the garrison commanders to inquire about soldier support issues.
- Do not talk to the garrison commanders unless one of your subordinate leaders comes to you and tells you that there is a problem.
- Coordinate with the garrison commanders whenever possible to ensure that your soldiers' needs are being met.
- Speak to your soldiers individually as often as you can to check up on how they are being treated.
- Check with the garrison commanders about the quality of support being provided to your soldiers.



C19. You are a company commander, and you believe that you have an incompetent battalion commander. This incompetence is both technical and tactical. Often this person issues directives that are not going to achieve the mission. What should you do?

- _____ Infer the underlying intent of the directive, go to your commander, and inform him of your interpretation of the underlying intent and the steps being taken to achieve this intent.
- _____ When provided with the next unworkable directive, go back to the commander immediately and try to help direct the commander's thinking onto more appropriate and workable solutions.
- _____ Use your first sergeant to help you develop ways to make the directive work well and look good to the troops.
- _____ Speak to the sergeant major and the executive officer, ask for any relevant information, and listen to their opinions.
- _____ Confront the commander and provide specific examples of why his directives are incompetent.
- _____ Speak to the brigade commander about the problem, arming yourself with specific examples of incompetent directives.
- _____ Continue to follow directives and let the chips fall where they may.
- _____ Explain to your subordinates that the battalion commander does not understand the area in question because it is not his primary specialty.
- _____ Infer the underlying intent of the directive and develop your own strategy to solve the problem and achieve the mission.
- _____ Communicate the battalion commander's intent (rather than his specific directive) and ensure that it is met.



C20. You are a company commander on deployment. Your unit is sustaining continuous operations. You are feeling the stress of the many demands upon your time, but you want to maintain your mental effectiveness and readiness. What should you do?

- Sleep.
- Take time alone each day to read inspirational books or materials.
- Use your peers as a sounding board and support group.
- Maintain contact with family and friends back home to keep you centered and remind you there's more to life than your job.
- Take time alone each day to think, regroup, and work through what's on your mind.
- Keep perspective by remembering that you have other talents and skills that are not related to your current job.
- Work as hard and as fast as you can: Have as your goal getting to tomorrow's work as soon as possible.
- Mentor or counsel troubled soldiers regularly to keep your own problems in perspective.
- Each day, reflect on your successes and on what you can do better in the future--maintain a positive focus.

Appendix

C

Unit Code: _____

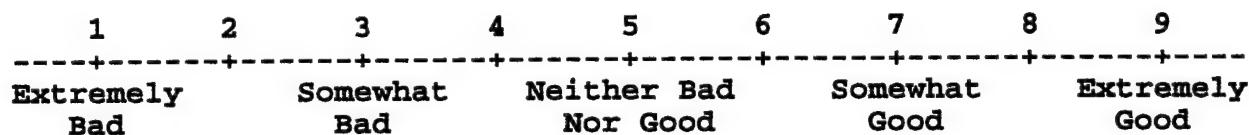
Tacit Knowledge for Military Leadership Project

BATTALION COMMANDER QUESTIONNAIRE

INSTRUCTIONS AND OVERVIEW OF TASK

The Tacit Knowledge for Military Leadership Project seeks to identify the practical, action-oriented knowledge that Army leaders acquire on the job. By uncovering these lessons of experience, we hope to be able to teach officers these lessons and enhance leadership development. To help us identify how military leaders solve problems on the job, the members of the research team developed this survey.

This survey consists of descriptions of typical situations encountered by military leaders. After each situation, there are several options for how to handle the situation. For each option listed, your task is to rate the quality of the option on the following 1-to-9 scale:

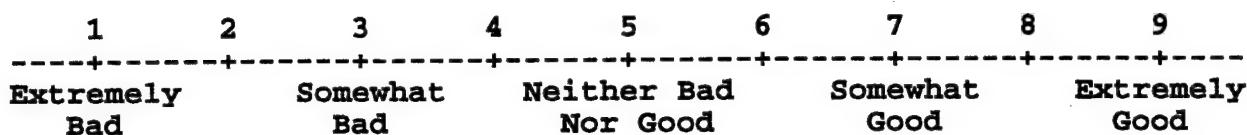


Select the number corresponding to your answer, and write it in the blank preceding the option. Remember that some or all of the options listed for a particular question may be good, some or all of the options may be bad, or some or all of the options may be neutral (neither bad nor good). There is no one "right answer," and in fact there may be no "right answers." The options are simply things an officer at this level might do in the situation described. Please rate each individual option for its quality in achieving the goal or solving the problem described in the question. Do not try to "spread out your ratings" just for the sake of doing so--if you think all of the options are good, bad, or whatever, rate them accordingly. DO NOT BE CONCERNED if the numbers are all 9s, all 5s, all 1s, one 9 and the rest 1s, or any other mix. Your answers should reflect your opinions about the quality of the options.

Research on leadership would not be possible without your generous assistance. Thank you for your help!

Privacy Act of 1974:

- a. Principal Purpose--The data collected from this survey will be used for research only.
- b. This Survey is Confidential--Only persons involved in collecting or preparing information for analysis will have access to completed surveys. Reports generated from results of this survey will be based on responses from groups of participants. Individuals or units will not be identified in any report.
- c. Participation is Voluntary but Needed--Your participation in this survey is important for the success of this project and will contribute to furthering the Army's understanding of leadership.

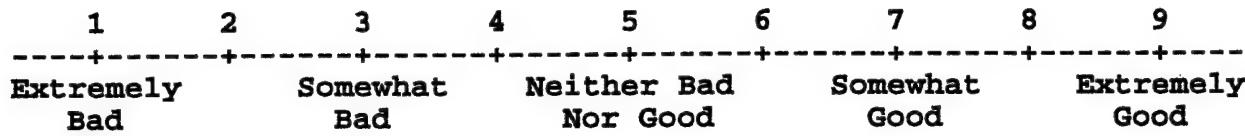


B1. You are a new battalion commander, and your first priority is to build trust with your soldiers. Rate the following strategies for how effective they would be at helping you achieve your goal.

- Maintain order and the proper professional atmosphere by using the chain of command and insisting that soldiers work through your subordinate leaders when they wish to communicate with you.
- Hold subordinate officers accountable for the accuracy of the bad news they bring you, but don't punish them for bringing bad news to you.
- Maintain detailed records of your subordinate leaders' and soldiers' activities so that you are well aware of what is going on in your unit.
- Do not feel compelled to display your technical and tactical competence--officers at your level do not have to compete with the technical skills of soldiers.
- When you punish a soldier your goal should be to make an example of him/her.
- Allow room for honest mistakes by your subordinate leaders.
- Be willing to support your soldiers by disagreeing with your brigade commander, if necessary.
- Use your own personal resources (such as your personal telephone line) to enhance the welfare of your soldiers.
- React differently to problems depending on your level of trust in the subordinate who brings them to your attention.
- Recognize that, during training, negative emotional reactions are appropriate at times.
- Lead by example by following the rules you make.
- Be seen exposing yourself to the same risks you expect your soldiers to take.

B1, Continued

- Encourage officers and soldiers to reflect on their decisions and on the appropriateness of these decisions.
- When you punish a soldier your goal should be to reduce future occurrences of the behavior.

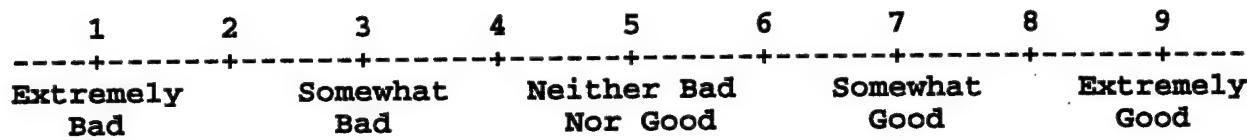


B2. You are a new battalion commander, and you want to develop detailed knowledge of the strengths and weaknesses of each of your company commanders. Rate the following strategies for their effectiveness in helping you gain this information:

- If you plan to talk to the soldiers, discuss beforehand with each company commander your intention to talk directly to the soldiers and explain your reasons for doing so.
- For each company, direct a sensing session of the entire company with the company commander present in order to get a sense of the unit.
- Ask the command sergeant major, battalion XO, and operations officer for their assessment.
- If you choose to talk to the soldiers, express your desire to each company commander to use the information you will learn to help with their development as leaders.
- Ask your company commanders to talk to their own soldiers and ask a specific list of questions, and then report back to you with the information they have learned.
- Talk directly (in private) with the soldiers and ask them to comment on the commanders' strengths and weaknesses.
- Talk directly (in private) with the soldiers and ask them their opinions about the quality of their training, what they are learning, and other impressions they have.
- Ask your company commanders to speak to other commanders' soldiers (not their own soldiers) and report back to you with the information they have learned.
- Assign a battalion staff member who does not rate the company commanders to speak with the soldiers and report to you on what he/she learns.
- Rely on historical statistical indicators of performance.
- Talk directly (in private) with the soldiers and ask them specific questions about their work hours, their job descriptions and responsibilities, and other factual items.

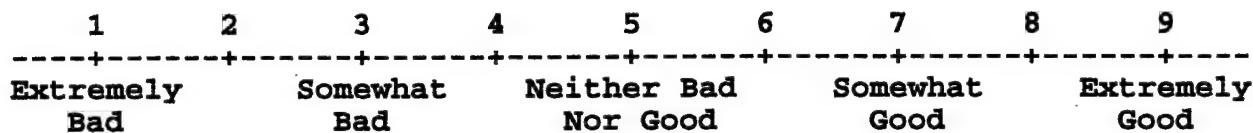
B2, Continued

- Speak to the company commanders individually and ask each of them to comment on the strengths and weaknesses of the other company commanders and units.
- Ask the brigade commander for his/her assessment.



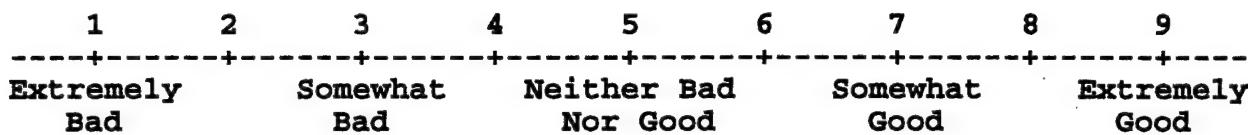
B3. You are a battalion commander and it is the end of your first battle at a major externally-evaluated training exercise, during which your unit revealed some major shortcomings. During the After Action Review, the Chief Evaluator is highly critical of the battalion and dwells on all the negative things your unit did that day. You carefully record all of the negative observations, but you know full well that the battalion also did some very positive things that day. What should you do?

- Leave the After Action Review and return to your units; once there, communicate exactly what the Evaluator said.
- If you have a good relationship with your CSM or other similar person, discuss your frustrations and feelings with him or her.
- Forget about trying to get any positive feedback: Thank the Evaluator directly for the negative feedback, say you will deal with the problems immediately, and do so without expecting anything more from him.
- Be careful not to vent your frustrations with the Evaluator's feedback in front of the soldiers or your junior officers.
- Ask the Chief Evaluator if he has anything else he would like to say.
- Mention one or two successes the battalion had, and ask the Evaluator if he would like to comment on these positive events.
- Leave the After Action Review and return to your units, but when you report to them make sure to note the successes that occurred that day as well as the failures and shortcomings.
- Speak to the Evaluator at another time, and state your desire to receive positive as well as negative feedback so that you know what the units are doing right and wrong.
- Share your feelings with a friend or confidante at your own level to help you work through any negative feelings.



B4. You are a new battalion commander and your main goal is to determine and set the training priorities for your unit. Rate the following strategies for how effective they would be in accomplishing your goal.

- Study the brigade's training schedule.
- Talk to the brigade S-2, S-3, and CSM to verify your understanding of the brigade commander's training focus.
- Schedule meetings to discuss training with each of your staff members during your first week of command.
- Explain your goals and your plans for the battalion very clearly to your officers and staff.
- Assess the tactical and technical competence of your soldiers individually by giving them formal and informal tests.
- Rely on the assessments made by the previous battalion commander.
- Select three to five upcoming missions (based on the brigade training plan) to focus your soldiers' energy on.
- Before doing anything, make sure you understand the commander's intent two levels up.
- Soon after taking command, visit each staff section's shop and get a full briefing on their operations.
- Talk to the brigade commander to determine his training priorities.

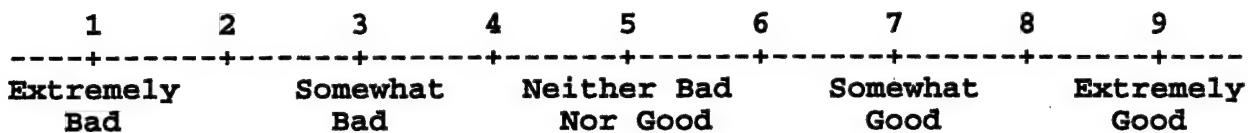


B5. You are a battalion commander. Your brigade commander has made it clear that he does not wish to speak with you about pressing issues that arise in your battalion. Also, he expects perfection from your battalion at all times, and he seems to view your battalion's poor performance at the JRTC as unforgivable--he keeps harping on past failures. The brigade commander does not provide you with feedback on your strengths and how to improve your weaknesses. His communication style is formal, abrupt, and in your opinion, ineffective. He begins every conversation by reminding you that you are only an O-5. You are frustrated because you never know where you stand, performance wise, in your brigade commander's eyes and you lack a person from whom to receive performance feedback. In general, you find your situation with the brigade commander to be intolerable, and morale in your unit seems dangerously low. What should you do?

- Speak to the Assistant Division Commander, explain your need for extra feedback, and request feedback on your performance.
- Deal with the brigade commander as best you can, but hold regular sessions with the members of your unit to air concerns and voice problems in the hope of improving morale.
- Remain loyal to the brigade commander so you do not model disloyalty in front of the members of your unit.
- Seek a formal appointment with the brigade commander, state that you and he seem to have a problem, and ask him why.
- If you choose to speak with the Assistant Division Commander and your officers are critical of your decision, then explain your reasons for your actions to them and let them know they are welcome to voice concerns about how you are leading the unit.
- Speak to your family members, the chaplain, or other friends from outside the military in order to deal with your personal frustrations.
- Jump the chain of command and speak to the Assistant Division Commander about the problem with the brigade commander.
- If you speak to the Assistant Division Commander, prepare yourself for the possibility of a disruption of loyalty in your own unit.

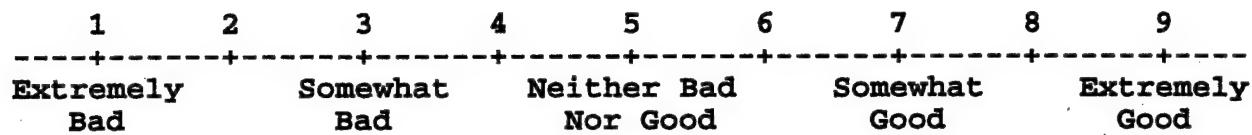
B5, Continued

- Talk to your fellow battalion commanders about the problem and try to develop a joint solution.
- Request advice from one of your brigade commander's superiors whom you already know and trust.
- Talk to the brigade XO and the brigade S3 and try to get some information.



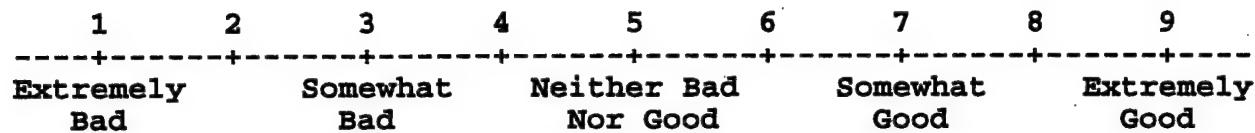
B6. You are a battalion commander and your goal is to implement effective training. Rate the following strategies in terms of how good they would be at achieving your goal.

- Provide soldiers and their families with a copy of an extended training schedule (for example, six months out).
- Develop specific rules and procedures that your battalion uses regularly in order to manage training.
- Go to the brigade S-3 and demand that the training schedule not be changed.
- Give soldiers three or four-day holiday weekends whenever possible.
- Take into consideration school vacations and events when planning training.
- Brief families collectively on the extended training schedule once it has been developed--have a family dinner in the mess hall, for example, and then go over the extended training schedule.
- Be willing to change the training schedule in order to capitalize on unplanned training opportunities.
- Have regular meetings with your brigade commander to keep him/her focused on what your battalion is doing.
- If someone violates the training schedule without authority, and without good cause, recommend the person for appropriate punishment.
- Once inside the specified time limit, do not make changes to the schedule once the schedule has been distributed.
- If you take away a soldier's weekend for a training exercise, make sure he or she gets it back during another training cycle.
- Try to dissuade your superiors from making sudden changes to the training schedule.
- Communicate your training goals and your vision to your subordinates and your superiors.



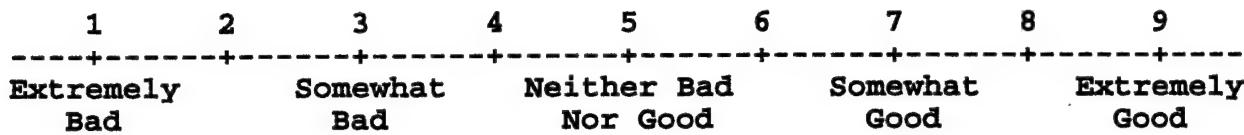
B7. You are a battalion commander, and there are many unmarried soldiers in your unit. You are concerned about the special needs and problems unmarried soldiers may have, since they do not have a regular family life. Your goal is to ensure high morale for your unmarried soldiers. Rate the quality of the following strategies for achieving your goal.

- Take special pains to ensure that single soldiers have some place to be on holidays--by arranging meals or outings for single soldiers, for example.
- Discourage single soldiers from taking holiday leaves and encourage them to take on holiday duties so that married soldiers can spend holidays with their families.
- Maintain procedures and facilities single soldiers need in order to communicate with family members back home--provide access to telephones, writing supplies, and so on--and encourage the soldiers to keep in touch with their families.
- Encourage married soldiers to invite single soldiers to their homes for holidays or other special occasions.
- Take measures (for example, obtaining furniture, making game rooms, and allowing soldiers to decorate the way they like) that will make the billets where the single soldiers live feel more like home to them.
- Allow soldiers from other units to share in the improvements you make to your soldiers' living quarters.
- Keep single soldiers busy with training and company sports so they won't get bored.
- Spend time with the single soldiers in their dining facility and gym.



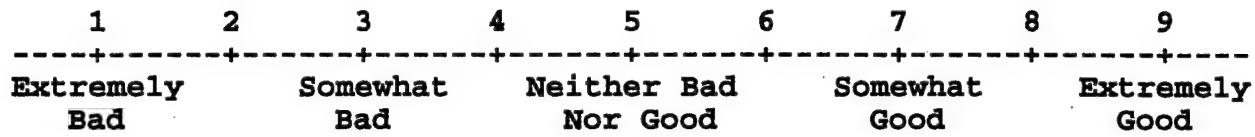
B8. You are a battalion commander, and you want to make sure that your soldiers and junior officers share your vision for the battalion. Rate the effectiveness of the following strategies for communicating your vision to your unit.

- Distribute your command philosophy in writing to all soldiers in your battalion.
- Reinforce your vision in all daily activities and interactions, and do so for the entire term of your command.
- Do not adhere to a single perspective--be willing to change your vision as necessary to reflect changing needs of the unit.
- On a daily basis, visit company areas in the garrison and in the field, and highlight shortcomings and the progress that has been made toward achieving your vision.
- Communicate your vision starting on the first day of your command.
- Reward those who support your vision, and punish those who don't.
- Solicit feedback and ideas from your junior officers regarding your vision--be alert for ways to improve it.



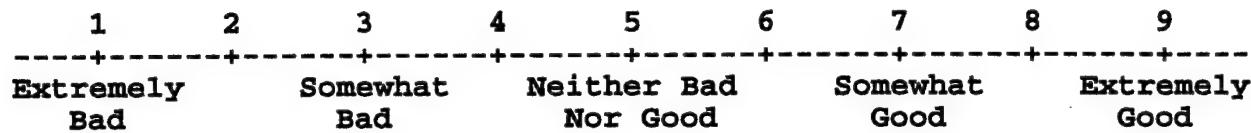
B9. You are an artillery battalion commander. You are in direct support of a brigade whose commander is a light infantryman, while your background is mechanized artillery. On several occasions, the differing perspectives of you and your brigade commander result in communication difficulties. For example, you are used to moving on the battlefield at a very fast pace, whereas your commander is used to moving at a slow pace. In fact, communication problems arise often between the two of you. Your goal is to improve your communication with your brigade commander. What should you do?

- Ask a peer of your brigade commander, such as a divarty commander, for help with the problem.
- Invite the brigade commander over to your house to watch a sporting event or movie and try to establish a friendship with him.
- Speak to the brigade commander, express your feelings about why the two of you sometimes have trouble communicating, and ask for his help with the problem.
- Make an effort to think from the brigade commander's point of view about your unit's activities and performance.
- Speak to the brigade commander, ask him why he believes the two of you sometimes have trouble communicating, and ask for his help with the problem.
- Find an interest or hobby you and your brigade commander share, then use this shared interest to develop analogies to help you communicate with him more effectively: In other words, talk in terms of topics you both understand.
- Make an attempt to interact with the brigade commander as a person outside of the work environment, in a wide variety of settings.
- Speak to your brigade commander's superior about the problem and ask for his advice.



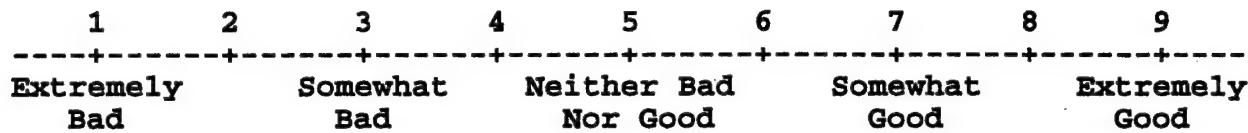
B10. You are a new battalion commander and you are feeling somewhat lonely and frustrated with your job. Your goal is to manage your stress effectively so that it does not interfere with your ability and motivation to perform at your best. Rate the quality of the following strategies for achieving your goal.

- Budget time for inspirational reading.
- Develop a mutual support group with other battalion commanders--talk to them frequently.
- Realize that dealing with stress is important to your promotion, and soldier on.
- Spend more time at the office and work harder--recognize that more satisfaction will come from pushing yourself harder and getting more done.
- Combat stress by engaging in physical exercise or an activity you enjoy.
- Use your spouse or other close friend from outside of the military as a sounding board.
- Use your junior officers to bounce ideas off of.
- Talk over your feelings with the brigade commander.
- Take up a hobby that is unrelated to your job demands.
- Budget time for personal reflection and relaxation.
- Keep a journal or notebook of ideas in order to organize your thoughts and work through things on paper.
- Remind yourself often that all battalion commanders experience such feelings and that your feelings are normal and will resolve themselves in time.
- Take as much leave as you are entitled to, and while on leave, do not think about work or have contact with work personnel.
- Realize that it is your job to tough things out for 24 months.
- Renew your vision and remind yourself of why you wanted to be a battalion commander.



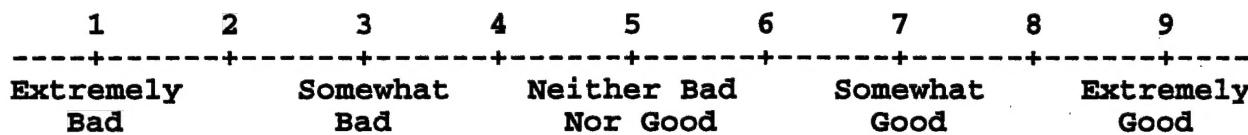
B11. You are a battalion commander, and one of your primary goals is to ensure that your soldiers have predictability in their lives. Thus, you are concerned about planning training way in advance, and you make it a point to do so. For some time, your unit has been scheduled for a pre-planned battalion-level training exercise. At the last minute, there is a brigade command and staff meeting. At the meeting, the brigade staff announces that they are making major changes in your battalion training plan. What should you do?

- Ask to have a minute alone with your commander and express your concerns to him privately, allowing him to voice these concerns openly at the meeting if he chooses to do so.
- After the meeting, attempt to get a consensus among all the battalion commanders regarding this issue, and communicate this shared viewpoint to the brigade commander.
- Be silent, but try to recruit your commander to your position after the meeting is over.
- State that soldiers need predictability in their lives, and note that the senior leaders should be setting the correct example.
- State that good training exercises require predictability so that leaders of all levels can learn.
- Stand up and remind the brigade staff, the brigade commander, and your peers about the brigade's specific doctrinal responsibilities for training.
- State that the brigade staff's proposal to change the short-term training schedules is a violation of training doctrine.
- Be silent: Do not try to second-guess the brigade staff's decision.



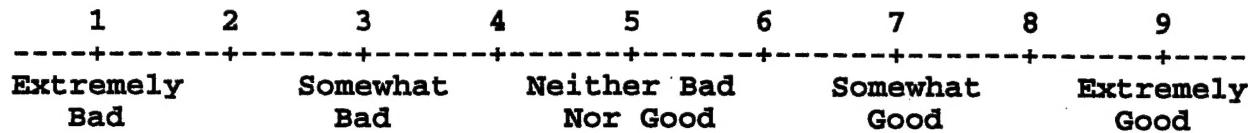
B12. You are a battalion commander. You have one company commander who is particularly intense. He sets extremely high--even unrealistic--standards for himself. His expectations are so high that he never can meet them, and this situation is hindering his professional development as an officer. He is scheduled for a major training exercise next month. Your goal is to communicate to the company commander that he is hurting himself by maintaining unreasonable standards. Rate the quality of the following strategies for achieving your goal.

- _____ Talk to all of your company commanders as a group about potential roadblocks to their development, mentioning too-high standards as one potential problem and describing examples to illustrate your point.
- _____ Wait to speak to the company commander until after he goes to the training exercise, using examples based on his experiences there to illustrate your points.
- _____ Do nothing: Allow him to learn from his own mistakes that no one can successfully maintain too-high standards forever.
- _____ Ask another company commander to have a friendly chat with the obsessive company commander about the need to have realistic goals.
- _____ Have a discussion with the company commander about his potential problem before he leaves for the training exercise, using examples you are aware of from your daily interactions with him in your unit.
- _____ Warn the company commander before he goes to the training exercise that you believe he has a serious problem that requires his immediate attention and that may ultimately derail his career.



B13. You are a battalion commander, and you notice early in your command that your guidance often becomes distorted when it reaches the lower ranks. For example, one day you comment that you want the line companies at 100% personnel strength for aircraft mechanics before you will start to assign them to headquarters. A few days later, the headquarters maintenance tech asks you why you are going to fill the line units at 150% of authorized mechanics before assigning them to headquarters! Your goal is to ensure that your guidance is communicated accurately to all levels of the organization. Rate the quality of the following strategies for achieving your goal.

- Hold meetings with your platoon leaders to verify what they know.
- When you must communicate important information verbally, try to speak directly to as many officers and soldiers as you can.
- Hold the chain of command responsible for accurately passing information down to lower ranks.
- Work on your relationship with your senior NCOs.
- Conduct periodic discussions with your soldiers to correct misperceptions, clarify your intent, and locate sources of information loss.
- Ask your company commanders to conduct periodic discussions with the soldiers so that the company commanders can verify that the lower levels are receiving accurate information.
- Whenever possible, post and distribute written statements outlining your objectives.
- Encourage your junior officers to be on the lookout for soldiers' statements about your orders that are not completely accurate--and ask the junior officers to correct these misperceptions immediately.
- Develop an NCO professional development program that stresses how to pass down information properly.
- Spend more time leading by walking around the unit and talking to people.
- Look for breaks in the chain of command.
- Use multiple means of communicating the same message.



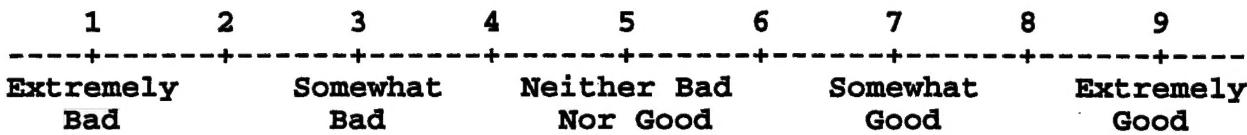
B14. You are a battalion commander. Reluctantly, you gave your S-1 a company command for his professional development, even though you had questions about his abilities. He was a loyal S-1, but not a very good one: He had problems with organization, and his workstyle was a bit "helter-skelter." In conversations with lieutenants you have learned that they are having a hard time with this individual. Also, as you walk around the battalion, you see other indications that confirm your doubts about this person's abilities. In general, you are concerned and you have doubts about this officer's ability to command effectively. What should you do?

- Ask your sergeant major to spend more time coaching the former S-1.
- Ask a competent company commander to mentor the problematic officer.
- Provide the former S-1 specific help with organization such as hints and strategies you and others have found useful.
- Set the former S-1 up with a strong 1SG and company XO.
- Explain to the former S-1 specifically why it is important for him to change his behavior for the soldiers' benefit.
- Help the lieutenants you spoke with to work through their direct superiors to solve problems.
- Communicate regularly with the officer and encourage him to use you as a resource whenever he has problems.
- Come down hard on the former S-1 about his shortcomings and threaten to take disciplinary action if he does not improve.
- Conduct sessions with the former S-1 during which you talk to him about aspects of his behavior you want changed.
- Talk to the S-1's first sergeant to get a better feel for what's going on.

1	2	3	4	5	6	7	8	9
Extremely Bad	Somewhat Bad	Neither Bad Nor Good		Somewhat Good	Extremely Good			

B15. You are a battalion commander in charge of a military intelligence battalion. You perceive that the soldiers in your unit sometimes know more about the operations of the companies than do the company commanders. In one company, the commander appears to be at the mercy of a few NCOs who know a great deal about the company's business, and therefore hold considerable informal power. The commander has been giving in to these NCOs in ways he should not have (for example, with regard to scheduling decisions). What should you do about this problem?

- Warn the NCOs who are undermining your company commander: Threaten appropriate action against them if they do not behave more appropriately in the future.
- Tell the company commander to give the NCOs the message that they must improve and to threaten disciplinary action to the NCOs if they do not.
- Encourage the company commander to work at developing his junior NCOs.
- Wait for the problematic NCOs to leave the unit by attrition.
- Involve the command sergeant major in the assessment and solution of the problem.
- Order the company commander to relieve the problematic NCOs.
- Meet with the company commander and encourage him to develop his own plan to remedy the situation with your assistance.
- Transfer the too-powerful NCOs to other companies, and attempt to place them in companies where they will no longer be working side by side with one another.
- Order the company commander to deal with the situation in whatever way he deems appropriate, and then let him solve the problem on his own.



B16. You are a battalion commander, and your primary goal is to mentor your officers and help them develop as professionals. Rate the quality of the following strategies for achieving your goal.

- Ask young officers to brief you on their range plans (for example) and then evaluate their thought processes.
- Model your own decision-making processes for your junior officers by talking aloud through the problem solving process.
- Be positive and encouraging in private counseling sessions with your officers.
- Empower others to do their jobs.
- Discuss junior leaders' mistakes in public in front of other officers.
- Before giving a directive, be sure that you yourself know exactly what you want the soldiers to do.
- Ensure that you provide truthful, honest assessments in your counseling.
- Point out junior leaders' mistakes in public, immediately and on the spot, whenever a mistake is made.
- Do not single out an officer in public to provide recognition for good performance.
- Involve ~~your~~ junior officers in your decision-making process and give them a real say in your decisions.
- Look for opportunities to give authority away.
- Encourage young officers to think about the consequences of their actions.
- Monitor your junior officers' participation in a professional reading program.
- Allow junior officers to fail.